

EPA REGISTRATION NUMBER 524-445 – Vol. 4

JAN 19 1995

Dr. Sheila A. Schuette
Monsanto Company
700 14th Street, N.W. Suite #1100
Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Toxicology Studies on AMPA)
EPA Registration No. 524-445
Your Application Dated August 5, 1994

This acknowledges receipt of your letter dated August 5, 1994 transmitting several toxicology studies on AMPA (aminomethylphosphonic acid) the major metabolite of glyphosate. These studies have been routed for comment. Further action will await completion of scientific review and evaluation.

The MRID numbers assigned the data accompanying this submission are as follows:

Volume 1	43334701
Volume 2	43334702
Volume 3	43334703
Volume 4	43334704
Volume 5	43334705
Volume 6	43334706
Volume 7	43334707
Volume 8	43334708
Volume 9	43555801
Volume 10	43334709
Volume 11	43334710
Volume 12	43334711
Volume 13	43334712
Volume 14	43334713
Volume 15	43334714
Volume 16	43334715
Volume 17	43334716

Sincerely,

Robert J. Taylor *VKW*
Product Manager 25

		Fungicide-Herbicide Branch					
		Registration Division (7505C)					
		CONCURRENCES					
SYMBOL	7505C						
SURNAME	VKW						
DATE	1/18/95						

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

433558-00

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433557-00

Revised 9/16/94
new book

August 5, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Submission of Supplemental Information:
Toxicology Studies on Aminomethylphosphonic Acid (AMPA)**

Dear Sir:

Monsanto is submitting supplemental information on the toxicology of aminomethylphosphonic acid (AMPA), which is the major metabolite of glyphosate. These studies were not conducted to fulfill any regulatory requirement, but rather as part of Monsanto's commitment to product stewardship.

The 17-volume submission contains the following studies:

- A 90-day oral toxicity study in Beagle dogs, along with a 1-month pilot study conducted to determine dose levels and an analytical study to determine the stability of the test material (Volumes 1-3).
- A developmental toxicity study in rats, along with the dose range-finding study and analysis of the test material (Volumes 4-6).
- Three mutagenicity studies: microbial mutagenicity, a mouse micronucleus study, and a hepatocyte DNA repair assay (Volumes 7-9).
- Several avian studies, including an acute oral toxicity study with Bobwhite quail, dietary LC₅₀ studies in the Bobwhite quail and Mallard, as well as the analysis of

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AMPA Submission
August 5, 1994
Page 2

test material in avian diet samples (Volumes 10-13).

- Acute toxicity to Rainbow trout and *Daphnia magna*, including analyses of the test material in water (Volumes 14-17).

Monsanto has previously submitted several toxicity studies on AMPA, including an acute toxicity battery (MRID 00040564) and a 90-day rat feeding study (Acc. No. 241351).

Monsanto believes that the data contained in these reports support the Agency's recent decision to remove AMPA from the tolerance expression for glyphosate.

If you have any questions, please contact me.

Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider

SEP 2 1994

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs

MONSANTO COMPANY
ATTN: RUSSELL P. SCHNEIDER
700 14TH ST., NW SUITE 1100
WASHINGTON, DC 20005

Report of Analysis for Compliance with PR Notice 86-5

Thank you for your transmittal of 08/10/94. Our staff has completed a preliminary analysis of the material. The results are provided as follows:

Your submittal was found to be in full compliance with the standards for submission of data contained in PR Notice 86-5. A copy of your bibliography is enclosed, annotated with Master Record ID's (MRIDs) assigned to each document submitted. Please use these numbers in all future references to these documents. Thank you for your cooperation. If you have any questions concerning this data submission, please raise them with the cognizant Product Manager, to whom the data have been released.

TRANSMITTAL DOCUMENT

SUBMITTED BY

The Agricultural Group of Monsanto Company
800 N. Lindbergh Blvd.
St. Louis, Missouri 63167

REGULATORY ACTION IN SUPPORT OF WHICH THIS PACKAGE IS SUBMITTED

Supplemental Information

TRANSMITTAL DATE

August 5, 1994

SUBMITTED STUDY

R.D. 1251

LIST OF SUBMITTED DOCUMENTS

Volume 1: L.D. Stout, "One Month Study of AMPA Administered by Capsule to Beagle Dogs" (1991), ML-90-186, an unpublished study conducted by The Agricultural Group of Monsanto Company. Guideline 82-1.

MRID 43334701

Volume 2: E.C. Tompkins, "90-Day Oral (Capsule) Toxicity Study in Dogs with AMPA" (1991), WI-90-354, an unpublished study by Wil Research Laboratories, conducted for The Agricultural Group of Monsanto Company. Guideline 82-1.

MRID 43334702

Volume 3: M.E. Holland, "Results of the Stability Analyses of AMPA (aminomethyl phosphonic acid) Test Material Used in a 90-Day Dog Study at WIL Laboratories (WI-90-354)" (1991), ML-90-369, an unpublished study conducted by The Agricultural Group of Monsanto Company. Guideline 82-1.

MRID 43334703

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Volume 4: J.F. Holson, "A Dose Range-Finding Developmental Toxicity Study of AMPA in Rats" (1991), WI-90-247, an unpublished study by Wil Research Laboratories, conducted for The Agricultural Group of Monsanto Company. Guideline 83-3.

MRID 43334704

Volume 5: J.F. Holson, "A Developmental Toxicity Study of AMPA in Rats" (1991), WI-90-266, an unpublished study by Wil Research Laboratories, conducted for The Agricultural Group of Monsanto Company. Guideline 83-3.

MRID 43334705

Volume 6: M.E. Holland, "Results of the Analyses of Corn Oil Samples From WIL Research Laboratories for AMPA (aminomethyl phosphonic acid)" (1990), ML-90-290, an unpublished study conducted by The Agricultural Group of Monsanto Company. Guideline 83-3.

MRID 43334706

Volume 7: Y. Shirasu, M. Moriya, and T. Ohta, "CP50435: Microbial Mutagenicity Study" (1980), ET-80-402, an unpublished study by The Institute of Environmental Toxicology, conducted for The Agricultural Group of Monsanto Company. Guideline 84-2.

MRID 43334707

Volume 8: L.D. Kier and S.D. Stegeman, "Mouse Micronucleus Study of AMPA" (1993), ML-90-404, an unpublished study conducted by The Agricultural Group of Monsanto Company. Guideline 84-2.

MRID 43334708

Volume 9: J.P. Bakke, "Evaluation of the Potential of AMPA to Induce Unscheduled DNA Synthesis in the *in vitro* Hepatocyte DNA Repair Assay Using the Male F-344 Rat" (1991), SR-91-234, an unpublished study by SRI International, conducted for The Agricultural Group of Monsanto Company. Guideline 84-4.

MRID

433558-01

Volume 10: S. Campbell, J. Grimes, G.J. Smith and S.P. Lynn, "AMPA: An Acute Oral Toxicity Study with the Northern Bobwhite" (1991), WL-90-397, an unpublished study by Wildlife International conducted for The Agricultural Group of Monsanto Company. Guideline 71-1.

MRID 43334709

Volume 11: R.D. Long, G.J. Smith, J.B. Beavers, and S.P. Lynn, "AMPA: A Dietary LC₅₀ Study with the Northern Bobwhite" (1991), WL-90-398, an unpublished study by Wildlife International conducted for The Agricultural Group of Monsanto Company. Guideline 71-2.

MRID 43334710

Volume 12: R.D. Long, G.J. Smith, J.B. Beavers, and S.P. Lynn, "AMPA: A Dietary LC₅₀ Study with the Mallard" (1991), WL-90-399, an unpublished study by Wildlife International conducted for The Agricultural Group of Monsanto Company. Guideline 71-2.

MRID 43334711

Volume 13: S. Schermes and K.W. McCune, "Results of the Analyses of Avian Diet Samples for AMPA (aminomethyl phosphonic acid)" (1990), ML-90-400, an unpublished study conducted by The Agricultural Group of Monsanto Company. Guideline 71-2.

MRID 43334712

Volume 14: J.H. Bowman, "Acute Toxicity of AMPA to Rainbow Trout (*Oncorhynchus mykiss*)" (1991), AB-90-402, an unpublished study by ABC Laboratories, conducted for The Agricultural Group of Monsanto Company. Guideline 72-1.

MRID 43334713

Volume 15: M.E. Holland, "Results of the Analyses of AMPA in a 96-Hour Acute Study with Rainbow Trout" (1990), ML-90-403, an unpublished study conducted by The Agricultural Group of Monsanto Company. Guideline 72-1.

MRID 43334714

Volume 16: D. Burgess and S.L. Hicks, "Acute Toxicity of AMPA to *Daphnia magna*" (1991), AB-90-401, an unpublished study by ABC Laboratories, conducted for The Agricultural Group of Monsanto Company. Guideline 72-2.

MRID 43334715

Volume 17: M.E. Holland, "Results of the Analyses of AMPA in a 48-Hour Acute Study with *Daphnia magna*" (1990), ML-90-403, an unpublished study conducted by The Agricultural Group of Monsanto Company. Guideline 72-2.

MRID 43334716

COMPANY OFFICIAL:

Sheila A. Schuette

Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs

COMPANY NAME:

MONSANTO COMPANY

COMPANY CONTACT:

Dr. Russ Schneider (202) 783-2460

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs

MONSANTO COMPANY
ATTN: RUSSELL P. SCHNEIDER
700 14TH ST., NW SUITE 1100
WASHINGTON, DC 20005

Report of Analysis for Compliance with PR Notice 86-5

Thank you for your transmittal of 08/10/94. Our staff has completed a preliminary analysis of the material. The results are provided as follows:

Your data submittal was found to be partially in compliance with the standards for submission of data contained in PR Notice 86-5, with the exceptions noted below. A copy of your transmittal bibliography is enclosed, annotated with the Master Record ID's (MRIDs) assigned to each document accepted. Please use these numbers in all future references to these documents. If deficiencies were found which apply to individual accepted studies, they are listed below following the applicable MRID. Any document which has been assigned a MRID has been accepted under PR Notice 86-5. If any comments related to a MRID appear on this report, they are provided for your information and reference when preparing future submissions. Some individual documents were not acceptable, and all copies are being returned to you for correction for the reasons indicated below. These rejected studies have been assigned separate identification numbers which are annotated on both the enclosed bibliography and the rejected document labels. The rejected studies and their deficiencies are described below.

Rejected study [09] :

EPA's Good Laboratory Practice (GLP) regulation requires a 40 CFR 160.12 submission of a true and correct statement of compliance or non-compliance with the GLP requirements. An acceptable statement must address directly the study's compliance or non-compliance with the GLP regulation, without any disclaimers, and must describe the study submitted, not the level of knowledge, understanding or belief of those who sign the statement. Qualifiers or disclaimers such as "based on someone else's signed statement," or "in the absence of any knowledge to the contrary," or "to the best of the signer's knowledge and belief" are unacceptable.

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The GLP compliance statement provided in this study contains unacceptable language of the kind described above. You must eliminate the unacceptable language from the statement of GLP compliance or non-compliance before we can accept this study for further processing.

TRANSMITTAL DOCUMENT

SUBMITTED BY

The Agricultural Group of Monsanto Company
800 N. Lindbergh Blvd.
St. Louis, Missouri 63167

REGULATORY ACTION IN SUPPORT OF WHICH THIS PACKAGE IS SUBMITTED

Supplemental Information

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R.D. 1251

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MRID 43334702

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MRID REJECT (09)

Volume 10: S. Campbell, J. Grimes, G.J. Smith and S.P. Lynn, "AMPA: An Acute Oral Toxicity Study with the Northern Bobwhite" (1991), WL-90-397, an unpublished study by Wildlife International conducted for The Agricultural Group of Monsanto Company. Guideline 71-1.

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MRID 43334716

COMPANY OFFICIAL:

Sheila A. Schuette
Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs

COMPANY NAME: MONSANTO COMPANY

COMPANY CONTACT: Dr. Russ Schneider (202) 783-2460

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JAN 19 1995

Dr. Sheila A. Schuette
Monsanto Company
700 14th Street, N.W. Suite #1100
Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Reduce PHI For Pome Fruit To 1 Day)
EPA Registration No. 524-445
Your Application Dated November 23, 1994

This acknowledges receipt of your amendment requesting reduction of the pre-harvest interval for pome fruit to 1 day. The amendment has been routed to the proper discipline for comment. Further action will await completion of scientific review and evaluation.

Sincerely,

Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (7505C)

CONCURRENCES								
SYMBOL	7505C							
SURNAME	V. K. W. J. K.							
DATE	1/18/95							

EPA Form 1320-1 (12-70)

OFFICIAL FILE COPY



United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☒ Amendment
☐ Other

OPP Identifier Number

219298

Application for Pesticide - Section I

1. Company/Product Number 524-445	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Roundup® Herbicide	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

<input checked="" type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of a supplemental label to reduce the pome fruit preharvest interval.

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____	
Certification must be submitted		If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt.	No. per container
3. Location of Net Contents Information <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container		4. Size(s) Retail Container various		5. Location of Label Directions <input checked="" type="checkbox"/> Top <input checked="" type="checkbox"/> Bottom	
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled			<input checked="" type="checkbox"/> Other vinyl glued		

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Dr. Russell P. Schneider	Title Agricultural Regulation Director	Telephone No. (Include Area Code) (202) 783-2460
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped)
2. Signature 	3. Title Manager, Regulatory Affairs	
4. Typed Name Sheila A. Schuette, Ph.D.	5. Date Nov. 23, 1994	

PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, and use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];
2. Confidential Statement of Formula (EPA Form 8570-4);
3. Formulator's Exemption Statement (EPA Form 8570-27);
4. Five copies of draft labeling;
5. Three copies of any data submitted;
6. Authorization letter where applicable;
7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission.

Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

1. **Company/Product Number** - Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
2. **EPA Product Manager** - If known, fill in the name and PR number of the EPA Product Manager.
3. **Proposed Classification** - Specify the proposed classification of this product.
4. **Product Name** - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
5. **Name and Address of Applicant** - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
6. **Expedited Review** - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment); for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. **Subject of submission** - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. **Type of Packaging** - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.
2. **Type of Retail Container** - Indicate type of container in which product will be marketed.
3. **Location of Net Contents** - Specify the net contents of all retail containers for your product.
4. **Size(s) of Retail Container** - Specify the net contents of all retail containers for your product.
5. **Location of Use Directions** - Indicate the location of the use directions for your product.
6. **Manner in which label is affixed to product** - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "as-too," reregistration, etc.

- 1-5. Self-explanatory.
6. EPA Use Only.

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Monsanto

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Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

November 23, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Submission of a Supplemental Label:
Reduction in Pome Fruit Preharvest Interval

Dear Sir:

Monsanto is submitting the enclosed supplemental label for Roundup® herbicide, which will allow a reduction in the preharvest interval (phi) from 14 days to 1 day. The current use of glyphosate on pome fruits with a 14-day phi is supported by data contained in MRID 00108129; Monsanto believes that these same data support a 1-day phi. Specifically, the following information has been considered:

- Residue trials were conducted on two varieties of apples and two varieties of pears; apples and pears are the representative commodities of the pome fruits crop group.
 - The residue trials were conducted using 3 applications at 8 lb/A. This exaggerated rate is three times (3X) the labeled application rate. The preharvest interval was 1 day..
 - No detectable residues (< 0.05 ppm) of either glyphosate or AMPA were detected in any of the fresh samples.
 - Low residues of glyphosate (\leq 0.08) were found in one of the treated dried pear samples; this level is below the current pome fruit tolerance of 0.2 ppm. No
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residues of AMPA were found in the dried pome fruit samples.

- Residue data from a number of other tree crops supports the conclusion that very low or non-detectable residues will be found following post-directed treatment with glyphosate.

In conclusion, the residue data contained in MRID 00108129 demonstrate that reducing the preharvest interval for pome fruit from 14 days to 1 day will not result in residues that exceed the established tolerance of 0.2 ppm. Monsanto therefore requests that the Agency review and approve the enclosed supplemental label.

If you have any questions regarding this submission, please contact Dr. Russ Schneider or me.

Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider
L.L. Gingerich

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Certification with Respect to Citation of Data

United States Environmental Protection Agency
Washington, DC 20460

Form Approved
OMB No. 2070-0060
Approval Expires 11-30-93

Applicants Name and Address Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005	EPA File Symbol/Registration Number 524-445
	Product Name Roundup® Herbicide
	Date of Application November 23, 1994

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of approval of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)

2. I certify that, for each study cited in support of this application for registration that is an exclusive use study,

☒ I am the original submitter*; or

☐ I have obtained the written permission of the original data submitter to cite that study*

3. I certify that, for each study cited in support of this application for registration that is not an exclusive use study:

a. ☒ I am the original data submitter*; or

☐ I have obtained the written permission of the original data submitter to cite that study*; or

b. ☐ I have notified in writing the companies that have submitted data I have cited to support this application and have offered to: (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)

☐ All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)

☐ Those companies that have submitted the studies which I have cited (Selective method*).

* A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the cite-all method.)

Signature 	Name and Title Sheila A. Schuette, Ph.D. Manager, Regulatory Affairs	Date Nov. 23, 1994
General Offer to Pay: I hereby offer and agree to pay compensation to other persons, with regard to the approval of this application, to the extent required.		
Signature	Name and Title	Date

JAN 19 1995

Dr. Sheila A. Schuette
Monsanto Company
700 14th Street, N.W. Suite #1100
Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Control of Weeds and Brush)
EPA Registration No. 524-445
Your Application Dated December 15, 1994

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. Please submit five (5) copies of your final printed labeling before you release the product for shipment. A stamped copy of labeling is enclosed for your records.

Sincerely,

JKW
Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (7505C)

21

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.

ROUNDUP®
Herbicide by Monsanto

EPA Reg. No. 524-445

FOR CONTROL OF
ANNUAL AND PERENNIAL WEEDS
AND WOODY BRUSH

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

®Roundup is a registered trademark of Monsanto Company.

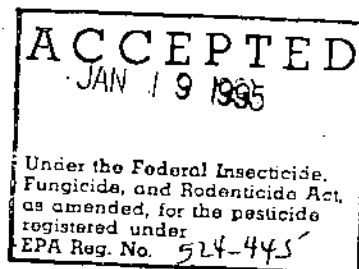
DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup herbicide for essential product performance information.



22 1

RECOMMENDATIONS

This product may be used to control or partially control the listed annual weeds, perennial weeds and wood brush. Refer to the label booklet for Roundup herbicide for crops, sites and use patterns where this product may be used.

Apply 1 to 1.5 quarts of this product per acre to control the following annual weeds: Alexandergrass or creeping signalgrass, arrowleaf sida, Brazilian pusley, bristly starbur, burgherkin, bur cucumber, coffee senna, eastern black nightshade, hairy signalgrass, prostrate spurge, redweed, smallflowered alexandergrass, spotted spurge, and tropic croton.

Apply 2 to 3 quarts of this product per acre to control the following perennial weeds or woody brush: perennial phase of smallflowered alexandergrass, alexandergrass or creeping signalgrass, hairy signalgrass, arrowleaf sida, and eastern black nightshade; goosegrass; primrose willow.

Apply 3 to 5 quarts of this product per acre to control the following perennial weeds or woody brush: smutgrass, Brazilian pepper and the perennial phase of Brazilian pusley.


Read the "Limit of Warranty and Liability" in the label booklet for Roundup herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

©Monsanto Company 1994

MAP

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

SUBMISSION REVIEW RECORD		1. REGISTRATION NUMBER		CYCLE		2. DATE RECEIVED	
3. 1010 PUBLICATION NECESSARY		4. PETITION NO.		5. RECEIVED BY TEAM		6. PROJECTED RETURN	
8. METHOD OF SUPPORT		7. PRODUCT MANAGER		NO.		NO.	
9. DATE PULLED		10. DATE PUBLISHED		11. ACTION TYPE		12. OUTGOING DATE	
13. REVIEW TYPE		14. REVIEWER CODE (Initials)		15. SIGNATURE OF REVIEWER		16. DATE REVIEW COMPLETED	
A REVIEWABILITY TEAM							
B PRODUCT MANAGER TEAM EFFICACY REVIEW							
C PRODUCT MANAGER TEAM HUMAN SAFETY REVIEW							
D PRODUCT MANAGER TEAM ENVIRONMENTAL SAFETY REVIEW							
E PRODUCT MANAGER TEAM RESUBMISSION REVIEW							
F PRODUCT MANAGER				UKL N/A		01/04/95	
G INTERAGENCY REFERRAL							
H COST-BENEFIT REVIEW							
I PUBLIC COMMENTS REVIEW							
J EEE BRANCH INSECTICIDE EFFICACY							
K EEE BRANCH HERBICIDE EFFICACY							
L EEE BRANCH FUNGICIDE EFFICACY							
M EEE BRANCH RODENTICIDE EFFICACY							
N EEE BRANCH DISINFECTANT EFFICACY							
O CHEMISTRY BRANCH RESIDUE CHEMISTRY							
P EEE BRANCH ENVIRONMENTAL CHEMISTRY							
Q TOXICOLOGY BRANCH HUMAN SAFETY							
R EEE BRANCH ENVIRONMENTAL SAFETY							
S							
T							
PRODUCT MANAGER SIGNATURE				TYPE OF RESPONSE			
				CODE			

(A) 	United States Environmental Protection Agency Office of Pesticide Programs (H7505C) Washington, DC 20460	<input type="checkbox"/> Registration <input checked="" type="checkbox"/> Amendment <input type="checkbox"/> Other	OPP Identifier Number 207737
	Application for Pesticide:		

Section I

1. Company/Product Number 524-445	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Roundup® Herbicide	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section II

<input checked="" type="checkbox"/> Amendment - Explain below	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - explain below.


Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Supplemental label for control of annual and perennial weeds and woody brush

Section III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Metal	<input checked="" type="checkbox"/> Plastic
				<input type="checkbox"/> Glass	<input type="checkbox"/> Paper
				<input type="checkbox"/> Other (Specify) _____	
* Certification must be submitted.					
3. Location of Net Contents Information <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container		4. Size(s) of Retail Container various		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input checked="" type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label Is Affixed To Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input checked="" type="checkbox"/> Other (vinyl glued)			

Section IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Dr. Russell P. Schneider	Title Agricultural Regulation Director	Telephone Nos. (Include Area Code) (202) 783-2460
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped) 25
2. Signature 	3. Title Manager, Regulatory Affairs	
4. Typed Name Sheila A. Schuette, Ph.D.	5. Date 12/15/94	

PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];
2. Confidential Statement of Formula (EPA Form 8570-4);
3. Formulator's Exemption Statement (EPA Form 8570-27);
4. Five copies of draft labeling;
5. Three copies of any data submitted;
6. Authorization letter where applicable;
7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission.

Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

1. **Company/Product Number** - Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
2. **EPA Product Manager** - If known, fill in the name and PM number of the EPA Product Manager.
3. **Proposed Classification** - Specify the proposed classification of this product.
4. **Product Name** - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
5. **Name and Address of Applicant** - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
6. **Expedited Review** - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. **Subject of submission** - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. **Type of Packaging** - Check the appropriate block if your product will be packaged in the indicated packaging types.
2. **Indicate the size of the individual packets and number per retail container.**
3. **Type of Retail Container** - Indicate type of container in which product will be marketed.
4. **Location of Net Contents** - Specify the net contents of all retail containers for your product.
5. **Size(s) of Retail Container** - Specify the net contents of all retail containers for your product.
6. **Location of Use Directions** - Indicate the location of the use directions for your product.
7. **Form in which label is affixed to product** - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "me-too," reregistration, etc.

- 1-5. Self-explanatory.
6. EPA Use Only.

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

December 15, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Supplemental Label for Control of Annual and Perennial Weeds
and Woody Brush

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of a supplemental label for use of Roundup herbicide to control additional annual and perennial weeds and woody brush. Rate recommendations for each species are provided.

Monsanto requests that the Agency approve and stamp the enclosed supplemental label. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed.

If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248



United States Environmental Protection Agency
Washington, DC 20460

Form Approved
OMB No. 2070-0060
Approval Expires 11-30-93

Certification with Respect to Citation of Data

Applicants Name and Address

Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, DC 20005

EPA File Symbol/Registration Number

524-445

Product Name

Roundup® Herbicide

Date of Application

December 15, 1994

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of approval of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)

2. I certify that, for each study cited in support of this application for registration that is an exclusive use study,

☒ I am the original submitter*; or

☐ I have obtained the written permission of the original data submitter to cite that study*

3. I certify that, for each study cited in support of this application for registration that is not an exclusive use study,

a. ☒ I am the original data submitter*; or

☐ I have obtained the written permission of the original data submitter to cite that study*; or

b. ☐ I have notified in writing the companies that have submitted data I have cited to support this application and have offered to: (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)

☐ All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)

☐ Those companies that have submitted the studies which I have cited (Selective method*).

* A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the cite-all method.)

Signature

Sheila A. Schuette

Name and Title

Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs

Date

12/15/94

General Offer to Pay: I hereby offer and agree to pay compensation to other persons, with regard to the approval of this application, to the extent required.

Signature

Name and Title

Date

JAN 19 1995

Dr. Sheila A. Schuette
Monsanto Company
700 14th Street, N.W. Suite #1100
Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Label for Seed Production of Roundup Ready Cotton)
EPA Registration No. 524-445
Your Application Dated October 31, 1994

The amendment referred to above, submitted in connection with registration under FIFRA sec. 3(c)(7)(A), is acceptable provided that you:

1. Submit and/or cite all data required for registration/reregistration of your product under FIFRA sec. 3(c)(5) and sec. 4 when the Agency requires all registrants of similar products to submit such data.

2. Submit five (5) copies of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Sincerely,

Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (7505C)

29

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup®, container labels, and this supplement.

ROUNDUP®
Herbicide by Monsanto

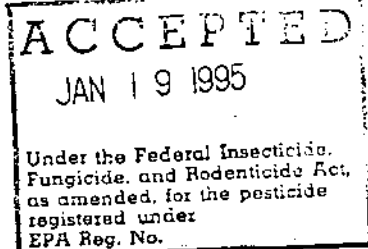
EPA Reg. No. 524-445

**USE ONLY FOR SEED PRODUCTION OF COTTON WITH THE ROUNDUP
READY™ GENE**

Keep out of reach of children.

WARNING! AVISO!

**In case of emergency involving this product, call collect, day or night,
(314) 694-4000.**



Roundup® is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES, AND APPLICATIONS INSTRUCTIONS" sections of the label booklet for Roundup for essential product performance information.

NOTE: THIS PRODUCT MAY BE USED FOR CONTROL OF NON-GLYPHOSATE TOLERANT COTTON IN PRODUCTION FIELDS OF COTTON CONTAINING THE ROUNDUP READY™ GENE. SEVERE INJURY OR DEATH WILL RESULT IF COTTON VARIETIES WHICH DO NOT CONTAIN THE ROUNDUP READY™ GENE ARE SPRAYED WITH THIS PRODUCT. AVOID CONTACT OF THE SPRAY WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS AND TREES, OTHER THAN COTTON WITH THE ROUNDUP READY™ GENE, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

30

USE RECOMMENDATIONS:

When applied as directed under the conditions described, this product will control non-glyphosate tolerant cotton in seed production fields of cotton containing the Roundup Ready™ gene. This product may be applied using ground spray equipment only. Apply 1 quart of this product plus 0.5 to 1.0% nonionic surfactant by total spray volume in 5 to 20 gallons of spray solution per acre as a broadcast spray.

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT.

Application Timing - This product can be applied to Roundup Ready™ Cotton from the cotyledonary stage through the four true leaf stage.

SUBMISSION REVIEW RECORD			1. REGISTRATION NUMBER		CYCLE		2. DATE RECEIVED	
3. IS A PUBLICATION NECESSARY			4. PETITION NO.		5. RECEIVED BY TEAM		6. PROJECTED RETURN	
5. METHOD OF SUPPORT			7. PRODUCT MANAGER		NO.		8. PROJECTED RETURN	
9. DATE POLLED			10. DATE PUBLISHED		11. ACTION TYPE		12. OUTGOING DATE	
13. REVIEW TYPE			14. REVIEWER CODE (Initials)		15. SIGNATURE OF REVIEWER		16. DATE REVIEW COMPLETED	
<input type="checkbox"/> YES	<input type="checkbox"/> NO							
<input type="checkbox"/> 2A	<input type="checkbox"/> 2B	<input type="checkbox"/> 2C						
1/4/78					Seed Production of Cotton Seed with Roundup Ready Gene			
A	REVIEWABILITY TEAM							
B	PRODUCT MANAGER TEAM EFFICACY REVIEW							
C	PRODUCT MANAGER TEAM HUMAN SAFETY REVIEW							
D	PRODUCT MANAGER TEAM ENVIRONMENTAL SAFETY REVIEW							
E	PRODUCT MANAGER TEAM RESUBMISSION REVIEW							
F	PRODUCT MANAGER				VKW NAL	0/1	0/4	9/5
G	INTERAGENCY REFERRAL							
H	COST-BENEFIT REVIEW							
I	PUBLIC COMMENTS REVIEW							
J	EEE BRANCH INSECTICIDE EFFICACY							
K	EEE BRANCH HERBICIDE EFFICACY							
L	EEE BRANCH FUNGICIDE EFFICACY							
M	EEE BRANCH RODENTICIDE EFFICACY							
N	EEE BRANCH DISINFECTANT EFFICACY							
O	CHEMISTRY BRANCH RESIDUE CHEMISTRY							
P	EEE BRANCH ENVIRON- MENTAL CHEMISTRY							
Q	TOXICOLOGY BRANCH HUMAN SAFETY							
R	EEE BRANCH ENVIRON- MENTAL SAFETY							
S								
T								
PRODUCT MANAGER SIGNATURE			TYPE OF RESPONSE				CODE	

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

October 31, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: Roundup® Herbicide (EPA Reg. No. 524-445)
Supplemental Label for Seed Production of
Roundup Ready™ Cotton

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of a supplemental label for Roundup herbicide, which allows the use of Roundup herbicide in the production of Roundup Ready Cotton seed. This use is necessary as a quality control measure to ensure that the Roundup Ready cotton seed produced by seed companies will be free of any non-glyphosate-tolerance cotton seeds. This label will only be distributed to a limited number of seed companies who are working closely with Monsanto on the development of this new technology.

Roundup herbicide is currently registered for a number of uses in cotton, including preplant, preemergence, selective equipment, spot treatment and preharvest applications. Tolerances are also established for glyphosate on cotton seed, forage and hay at 15 ppm. Preliminary residue data indicate that the proposed over-the-top use for seed production will not result in residues that exceed these tolerances.

Although we expect that the cotton seed produced will be within existing tolerances for glyphosate, the seed will remain under the control of the seed producer and will not be sold until the commercial use is approved by the Agency. We expect to make the submission for the commercial use in the Spring of 1995. No forage will be collected


Roundup Ready Cotton
October 31, 1994
Page 2

during seed production, since the plants must be grown to maturity in order to harvest the seed. After harvest of the seed, the remaining plant material will be plowed under. In the event that a cotton seed production field is damaged (e.g., by hail) and cannot be grown to maturity, any remaining plants will be destroyed.

The production of Roundup Ready Cotton seeds represent a significant financial investment by the seed companies. The enclosed supplemental label is needed to protect that investment by ensuring that any non-tolerant volunteers are destroyed prior to seed formation. This financial investment also ensures that the Roundup Ready Cotton seeds will not enter the market before the commercial use label is approved -- the seed will only be sold when a premium can be obtained for the technology.

In summary, this label is needed by producers of Roundup Ready Cotton seed as a quality control tool. The seed will not be sold until the commercial use is approved and, in the rare case that any of the seed or other plant material inadvertently enters channels of trade prematurely, glyphosate residues are expected to be within existing tolerances. Monsanto therefore requests that the Agency approve and stamp the enclosed supplemental label. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed. If you have any questions regarding this submission, please contact Dr. Russ Schneider or me.

Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider



United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☒ Amendment
☐ Other

OPP Identifier Number

219282

Application for Pesticide - Section I

1. Company/Product Number 524-445	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Roundup® Herbicide	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(ii), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

<input checked="" type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Supplemental label for see production of Roundup Ready™ Cotton.

Section - III

1. Material This Product Will Be Packaged In:						2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				<input type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____	
Certification must be submitted		If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt.	No. per container		
3. Location of Net Contents Information <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container		4. Size(s) Retail Container various		5. Location of Label Directions <input checked="" type="checkbox"/> On label <input checked="" type="checkbox"/> On label accompanying product			
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input checked="" type="checkbox"/> Other vinyl glued					

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name		Title	
		Telephone No. (Include Area Code)	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			6. Date Application Received (Stamped) 35
2. Signature Sheila A. Schuette		3. Title Manager, Regulatory Affairs	
4. Typed Name Sheila A. Schuette, Ph.D.		5. Date Oct. 31, 1994	

PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, and use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). (If not exempted by 40 CFR 152.81 (b) (4));
2. Confidential Statement of Formula (EPA Form 8570-4);
3. Formulator's Exemption Statement (EPA Form 8570-27);
4. Five copies of draft labeling;
5. Three copies of any data submitted;
6. Authorization letter where applicable;
7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission.

Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

1. **Company/Product Number** - Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
2. **EPA Product Manager** - If known, fill in the name and PM number of the EPA Product Manager.
3. **Proposed Classification** - Specify the proposed classification of this product.
4. **Product Name** - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
5. **Name and Address of Applicant** - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
6. **Expedited Review** - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. **Subject of submission** - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. **Type of Packaging** - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.
2. **Type of Retail Container** - Indicate type of container in which product will be marketed.
3. **Location of Net Contents** - Specify the net contents of all retail containers for your product.
4. **Size(s) of Retail Container** - Specify the net contents of all retail containers for your product.
5. **Location of Use Directions** - Indicate the location of the use directions for your product.
6. **Manner in which label is affixed to product** - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "me-too," reregistration, etc.

1. Self-explanatory.
2. EPA Use Only:

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United States Environmental Protection Agency
Washington, DC 20460

Form Approved
OMB No. 2070-0060
Approval Expires 11-30-93

Certification with Respect to Citation of Data

Applicants Name and Address Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005	EPA File Symbol/Registration Number 524-445
	Product Name Roundup® Herbicide
	Date of Application October 31, 1994

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of approval of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)
2. I certify that, for each study cited in support of this application for registration that is an exclusive use study,
☒ I am the original submitter*; or
☐ I have obtained the written permission of the original data submitter to cite that study*
3. I certify that, for each study cited in support of this application for registration that is not an exclusive use study:
 - a. ☒ I am the original data submitter*; or
☐ I have obtained the written permission of the original data submitter to cite that study*; or
 - b. ☐ I have notified in writing the companies that have submitted data I have cited to support this application and have offered to: (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)
☐ All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)
☐ Those companies that have submitted the studies which I have cited (Selective method*).

* A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the cite-all method.)

Signature 	Name and Title Sheila A. Schuette, Ph.D. Manager, Regulatory Affairs	Date Oct. 31, 1994
General Offer to Pay: I hereby offer and agree to pay compensation to other persons, with regard to the approval of this application, to the extent required.		
Signature	Name and Title	Date

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JAN 19 1995

Dr. Sheila A. Schutte
Monsanto Company
700 14th Street, N.W. Suite 1100
Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Revised CSF--Change in Supplier)
EPA Registration No. 524-445
Your Letter Dated June 24, 1994

The scientific review and evaluation of the alternate formulation submitted above have been completed. The revised CSF appears to be acceptable and our records have been modified accordingly. However because the original CSF s dated June 8, 1993 and the original CSF accompanying this submission have been misplaced please submit original CSF s for the files as soon as possible.

Sincerely,

Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (7505C)

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United States Environmental Protection Agency
Office of Pesticide Programs (H7505C)
Washington, DC 20460

Application for Pesticide:

☐ Registration
☒ Amendment
☐ Other

OPP Identifier Number

207674

Section I

1. Product Number 524-445	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Product (Name) Roundup® Herbicide	PM# 25	
5. Address of Applicant (Include ZIP Code) Monsanto Company 800 14th Street, N.W., Suite 1100 Washington, DC 20005 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section II

7. Comment - Explain below	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
8. Submission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
9. Other - Explain below.	<input type="checkbox"/> Other - explain below.

on: Use additional page(s) if necessary. (For section I and Section II.)

Revision of Revised Confidential Statement of Formula

Section III

This Product Will Be Packaged In:					
1. Packaging	Unit Packaging		Water Soluble Packaging		2. Type of Container
Yes	<input type="checkbox"/> Yes		<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
No	<input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> No		
3. Information must be provided.	If "Yes," Unit Package wgt.	No. per container	If "Yes," Package wgt.	No. per container	
4. Size(s) of Retail Container	Various		5. Location of Label Directions		
6. In Which Label Is Affixed To Product	<input checked="" type="checkbox"/> Container		<input checked="" type="checkbox"/> On Label <input checked="" type="checkbox"/> On Labeling accompanying product		
			<input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		
			<input checked="" type="checkbox"/> Other (vinyl glued)		

Section IV

Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Russell P. Schneider	Title Agricultural Regulation Director	Telephone No. (Include Area Code) (202) 783-2460 39

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

6. Date Application Received
(Stamped)

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

ne 24, 1994

Division of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
21 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: Roundup® Herbicide (EPA Reg. No. 524-445)
Submission of Revised Confidential Statement of Formula

Dear Sir:

Monsanto is submitting a revised Confidential Statement of Formula (CSF) for Roundup herbicide (EPA Reg. No. 524-445). The most recent CSF for this product was approved by the December 9, 1993. The following changes have been made to the revised CSF we are now submitting:

The certified limits for the surfactant have been modified. The previous limits were based on the $\pm 5\%$ standard range recommended in 40 CFR 158.175. However, due to the variation in the analytical method used to measure the surfactant level, we find that this range is too tight and makes process control difficult. We are therefore requesting a slightly wider range for the surfactant certified limits.

[REDACTED] This change in supplier has been noted on the revised CSF.

If approved, this revised CSF will supersede all previous versions of the CSF for Roundup names under this registration.

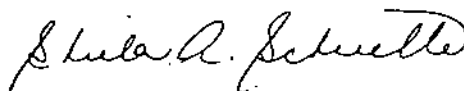
Product ingredient source information may be entitled to confidential treatment

40

vised CSF
ne 24, 1994
ge 2

ou have any questions, please contact me.

Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

R.P. Schneider
R.W. Street
D.E. Wolfersberger

DATE OUT: 8/24/94

SUBJECT: PRODUCT CHEMISTRY REVIEW OF:
A MANUFACTURING-USE [] OR AN END-USE PRODUCT []
DP Barcode D26266 Reg. No. or File Symbol No. 524-445

TO: (PM Team Reviewer) W. Allen
PM Team No. 25

FROM: (Chemist/Date) Bipin Gandhi ~~7/24/94~~ 8/24/94
Product Chemistry Review Section
Registration Support Branch/RD (H7505W)

THRU: Harold Podall, Ph.D., Section Head 7/28/92-1/94
Registration Support Branch/RD (H7505W)

SUMMARY OF INFORMATION REVIEWED AND FINDINGS

The CSF dated 6/8/93 must meet the conditions
on the CSF form before it is accepted.

The original CSF dated 6/8/93 is missing.
What I received is a 'photocopy' with
missing 'EPA use only column'

Need a new original CSF on the original
CSF form from the Monsanto.

submitted
1/23/95

CONFIDENTIAL APPENDIX A

EPA Reg. No. (or File Symbol No.) 524-445

Chemist B. Gandhi
Date: 8/24/94

DP Barcode: 205216

Following information is needed on

- (1) Full chemical composition
(2) CAS # for all components
(3) % of each component in

The above information can or may be forwarded to the Agency from the manufacturer under CBI.

The CSF dated 6/8/93 may be approved subject to the approval of the above chemical and submission of the original CSF.

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

January 5, 1995

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

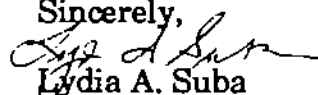
Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Submission of Final Printed Supplemental Label
(Preplant use with hybrid poplars).

Dear Sir:

Enclosed are five (5) copies of final printed supplemental label that allows the use of Roundup Herbicide prior to planting hybrid poplars to control undesirable woody brush and trees through directed sprays and wipers. This supplemental label was approved on November 16, 1994.

If you have any questions regarding this submission, please contact Dr. Russell Schneider at our Washington office or me at 314-694-2124.

Sincerely,



Lydia A. Suba
Registration Manager

cc: R.P. Schneider
R.D. Voth
D.M. Fee-White
D.A. Humphrey

(A) 	United States Environmental Protection Agency Office of Pesticide Programs (H7505C) Washington, DC 20460 Application for Pesticide:	<input type="checkbox"/> Registration <input type="checkbox"/> Amendment <input checked="" type="checkbox"/> Other	OPP Identifier Number <div style="font-size: 24pt; font-weight: bold;">185099</div>
----------------	-----------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------

Section I

1. Company/Product Number <div style="text-align: center;">524-445</div>	2. EPA Product Manager <div style="text-align: center;">Robert J. Taylor</div>	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) <div style="text-align: center;">Roundup® Herbicide</div>	PM# <div style="text-align: center;">25</div>	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005 <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____

Section II

<input type="checkbox"/> Amendment - Explain below <input type="checkbox"/> Resubmission in response to Agency letter dated _____ <input type="checkbox"/> Notification - Explain below.	<input checked="" type="checkbox"/> Final printed labels in response to Agency letter dated <u>11/16/94</u> <input type="checkbox"/> "Me Too" Application. <input type="checkbox"/> Other - explain below.
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of final printed label for use in hybrid poplar

Section III

1. Material This Product Will Be Packaged In:			
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If "Yes," Unit Package wgt. _____ No. per container _____	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If "Yes," Package wgt. _____ No. per container _____	2. Type of Container <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) of Retail Container _____	
5. Location of Label Directions <input type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product		6. Manner In Which Label Is Affixed To Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled <input type="checkbox"/> Other _____	

Section IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name <div style="text-align: center;">Dr. Russell P. Schneider</div>	Title <div style="text-align: center;">Agricultural Regulation Director</div>	Telephone No. (Include Area Code) <div style="text-align: center;">(202) 783-2460</div>	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			6. Data Application Received (Stamped)
2. Signature 	3. Title <div style="text-align: center;">Registration Manager</div>		45
4. Typed Name <div style="text-align: center;">Lydia A. Suba</div>	5. Date <div style="text-align: center;">1/5/95</div>		

SUPPLEMENTAL LABELING

READ AND FOLLOW THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup herbicide and this supplement.

NOT REVIEWED
in accordance with FR Notice 82-2.
Label on Draft Labeling Dated 11/16/44

Roundup
Herbicide by Monsanto

EPA Reg. No. 524-445

ROUNDUP® HERBICIDE FOR USE IN HYBRID POPLAR (*Populus spp.*) PRODUCTION.

Keep out of reach of children.

WARNING! AVISO!

In case of emergency involving this product, Call Collect, day or night, (314) 694-4000.

Roundup® is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with the labeling.

This label must be in the possession of the user at the time of the herbicide application.

See "General Information" and "Mixing, Additives, and Application Instructions" sections of the Roundup herbicide label booklet for essential product performance information.

PREPLANT

This product is recommended for use prior to planting *Populus spp.* This includes, but is not limited to hybrid poplars and hybrid cottonwoods.

See the Roundup herbicide label booklet for specific rates for the weeds being controlled.

IN CROP USES

DIRECTED SPRAYS

Use a 2 percent spray solution as a spray-to-wet application for the control of undesirable woody brush and trees. To control herbaceous weeds, use a 1 to 2 percent solution. Avoid contact of spray, drift, or mist with foliage, green bark or non-woody surface roots of the *Populus spp.*

Mix 2 to 6 quarts of a nonionic surfactant per 100 gallons of spray solution (0.5 to 1.5 percent spray volume). Use a surfactant with greater than 70 percent active ingredient.

WIPERS

This product may be used through wick or other suitable wiper applicators for control or partial control of grass and broadleaf weeds listed on the label.

For wick applicators, mix 1 gallon of this product with 2 gallons water to make a 33% solution. For wiper systems that can handle thicker solutions, such as force fed systems, a 33 to 100% Roundup solution may be used.

For best results ensure that the herbicide solution is allowed to contact the maximum amount of leaf surface. As weed densities increase, decrease equipment speed to allow sufficient herbicide flow to wet all weed surfaces contacted. Weeds not contacted will be unaffected.

AVOID HERBICIDE CONTACT WITH DESIRABLE VEGETATION. Desirable vegetation contacted by the herbicide solution may be injured or controlled. This includes foliage, fruit, or green stems.

Read "Limit of Warranty and Liability" in the label booklet for Roundup before using this product. Those terms apply to this supplemental labeling and, if those terms are not acceptable, return the product unopened at once.

© Monsanto Company 1991

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

21001S1-35

December 19, 1994

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JAN 19 1995

Dr. Sheila A. Schuette
Monsanto Company
700 14 th Street, N. W. Suite #1100
Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Glyphosate Tolerance Expression Meeting
Memorandum of Understanding
Your Letter Dated February 23, 1994

The scientific review and evaluation of the Memorandum of Understanding submitted above have been completed. The following are a summary of our conclusions and/or comments. Refer to enclosed copies of reviews for details.

I. Residue Chemistry

A. We concur with your first conclusion.

B. We concur that conclusion 2 of the memorandum was the conclusion for the meeting. However, in the interim between this meeting and CBTS's review of the memo of understanding, the new Table II (of subdivision O), which no longer allows feeding and grazing restrictions for soybean forage has been provided to NACA and will soon be released for comment.

C. Since CBTS is now basing its regulatory decisions on the new Table II you are referred to this Table for guidance as how to proceed with new pesticide petitions which are affected by these changes.

D. With respect to the new glyphosate use on herbicide-tolerant soybeans, if residue data are available for forage and hay and if the residue data indicates that over-tolerance residues could occur from the new use, then Monsanto should petition the Agency for an increase in tolerance on the appropriate commodities.

E. If however, the residue has not yet been generated, the Agency could grant a conditional registration with an expiration date contingent upon the data being generated. If it is likely that CBTS would not permit a feeding and grazing restriction for soybean forage and hay except on an interim basis while data are being generated.

F. The need for AMPA residues to be included in the risk assessment for glyphosate is under the purview of the Toxicology Branches and would be dependent on the new toxicology data which was presented at this meeting but has not been reviewed by the Agency.

SYMBOL	15050								
SURNAME	UKW								
DATE	1/18/95								

EPA Form 1320-1 (12-70)

OFFICIAL FILE COPY

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- G. We agree that Monsanto should continue to analyze RACs for residues of AMPA. You should note that the HED Metabolism Committee has reiterated their conclusion that AMPA need not be regulated regardless of levels in foods or feeds even in light of the change in residue profile due to transgenically-engineered soybeans.
- H. Please note that the above conclusions could be revised once the new metabolism, residue, and toxicology data have been received and reviewed by the Agency. Monsanto has commented that they agree with the Agency's decision to remove AMPA from the glyphosate tolerance expression and request that this decision be formalized by granting an exemption from tolerance for AMPA.

II. Toxicology

- A. Toxicology has reviewed the subject Memorandum and confirms its accuracy.
- B. Subsequently to that meeting, the HED Metabolism Committee met and agreed to drop AMPA from the tolerance expression.

Sincerely,

Robert J. Tailor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (7505C)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 3 1994

MEMORANDUM

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Subject: Comments on the Memo of Understanding from Monsanto to EPA from the 2/10/94 meeting on genetically-engineered soybeans. No MRID, CBTS #13306, DP D200039.

From: Mary H. Peters, Chemist
Tolerance Petition Section I *Mary H. Peters*
Chemistry Branch I-Tolerance Support
Health Effects Division (7509C)

Through: Robert Quick, Section Head
Tolerance Petition Section I *Robert Quick*
Chemistry Branch I-Tolerance Support
Health Effects Division (7509C)

To: Vickie Walters/Robert Taylor, PM Team #25
Fungicide/Herbicide Branch
Registration Division (7505C)

Monsanto has submitted a memo of understanding concerning the meeting held on 2/10/94 in which the glyphosate tolerance expression for genetically-modified, herbicide-tolerant soybeans was discussed. RD has requested CBTS' comments on this memo.

In the interest of harmonization with Codex, the Agency has proposed to modify the glyphosate tolerance expression from glyphosate (N-(phosphonomethyl)glycine) and its metabolite AMPA (aminomethylphosphonic acid) to glyphosate only. At the 2/10/94 meeting, Monsanto presented residue and plant metabolism data which indicated that the ratio of glyphosate to AMPA will change when glyphosate has been applied to genetically-engineered crops. Monsanto posed the question as to whether the Agency would still recommend for the change in the tolerance expression in light of the new metabolic profile.

Monsanto has listed four specific issues discussed, and their conclusions regarding the Agency's response to these issues.

1. The Agency confirmed that if AMPA were removed from the glyphosate tolerance expression, then AMPA residues would not be included in the tolerance value. For example, if there is an existing glyphosate tolerance for a crop at 0.1 ppm and a new use in that crop were to result in glyphosate residue levels below 0.1 ppm and AMPA residues above 0.1 ppm, then a new tolerance

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Recycled/Recyclable
Printed with Soy/Canola Ink on paper that
contains at least 50% recycled fiber

would not be required; such a commodity should not contain illegal residues and therefore could not be seized by FDA.

CBTS concurs with this conclusion.

2. The Agency noted that there will be a notice for public comment later this year on the feeding and grazing restrictions on soybean forage that Monsanto plans to request in conjunction with the over-the-top use of glyphosate, but that Monsanto could request the restriction in the submission. It was determined that placing the restriction on the seed bag rather than the herbicide label would likely not be enforceable.

CBTS concurs that this was a conclusion of the meeting. However, in the interim between this meeting and CBTS' review of the memo of understanding, the new Table II (of Subdivision O) which no longer allows feeding and grazing restrictions for soybean forage has been provided to NACA and will soon be released for public comment. Since CBTS is now basing its regulatory decisions on the new Table II, Monsanto is directed to the copy of this Table with the accompanying cover memo with guidance as to how to proceed with new pesticide petitions which are affected by these changes. With respect to the new glyphosate use on herbicide-tolerant soybeans, if residue data is available for forage and hay and if the residue data indicates that over-tolerance residues could occur from the new use, then Monsanto should petition the Agency for an increase in tolerance on the appropriate commodities. If, however, the residue data has not yet been generated, the Agency could grant a conditional registration with an expiration date contingent upon the data being generated. It is likely that CBTS would not permit a feeding and grazing restriction for soybean forage and hay except on an interim basis while data are being generated.

3. Monsanto will continue to analyze residue samples for both glyphosate and AMPA residues since the same analytical method is used for both. The data on AMPA would then be available if it were needed for risk assessment.

The need for AMPA residues to be included in the risk assessment for glyphosate is under the purview of the Toxicology Branches and would be dependent on the new toxicological data which was presented at this meeting but has not yet been submitted to the Agency. CBTS agrees that Monsanto should continue to analyze RACs for residues of AMPA. Monsanto should note that the HED Metabolism Committee has reiterated their conclusion that AMPA need not be regulated regardless of levels observed in foods or feeds even in light of the change in residue profile due to transgenically-engineered soybeans (HED Metabolism Committee memo, R. Perfetti, 3/17/94).

4. Dr. Schneider noted that glyphosate-tolerant soybeans will be grown at a demonstration plot near Washington, D.C. this summer and invited anyone who was interested in this new technology to visit the site; Monsanto will arrange the tours.

CBTS notes that the above conclusions could be revised once the new metabolism, residue, and toxicology data have been received and reviewed by the Agency. Monsanto has commented that they agree with the Agency's decision to remove AMPA from the glyphosate tolerance expression and request that this decision be formalized by granting an exemption from tolerance for AMPA.

cc: Larry Zeph (TS-788)

cc: RF, circ., M. Peters, Glyphosate SP

RD1: Sec Head: RSQuick: 5/2/94: BrSrScientist: RALoranger: 5/2/94: BrChief: ESaito: 5/3/94.

7509C: MHP:mhp: CMA7: Rm804C: (703)305-6380: 5/3/94.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 12 1994

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: 103601. Glyphosate. Comments on Memorandum of
Understanding for Tolerance Expression

PC Code 103601
Tox. Chem. No. 661A
Project No. D200038
Submission No. S459620

TO: Robert Taylor, PM Team # 25
Registration Division (7505C)

FROM: William Dykstra, Ph.D., Toxicologist
Section I, Toxicology Branch I
Health Effects Division (7509C)

William Dykstra
8/31/94

for THRU: Roger L. Gardner, Section Head
Section I, Toxicology Branch I
Health Effects Division (7509C)

Pamela M. Hurley 8/31/94
K/B
9/4/94

Background and Request:

On February 10, 1994, Monsanto met with the Agency to discuss the Agency's proposal to remove the metabolite aminomethylphosphonic acid (AMPA) from the glyphosate tolerance expression. At the meeting, Monsanto provided information concerning the AMPA residues on some crops that are currently being developed. During the discussion, the Agency confirmed that the new information would not change their recommendation to remove AMPA from the tolerance expression, as long as there were no unexpected results in the final reports.

The Toxicology Branch (TB-I) has been asked to comment on the Registrant's summary of the February 10th meeting and the conclusions from that meeting.

Toxicology Branch Response:

TB-I has examined the summary of the February 10th meeting that was submitted by the Registrant and confirms its accuracy. In addition, TB-I notes that subsequent to that meeting, the HED Metabolism Committee met and agreed to drop AMPA from the glyphosate tolerance expression.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 12 1994

MAR 17 1994

MEMORANDUM

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

SUBJECT: The Metabolism Committee Meetings For Glyphosate Held on
March 17, 1994.

FROM: R. Perfetti, Ph.D., Chemist *R. Perfetti*
Reregistration Section I
Chemistry Branch II - Reregistration Support
Health Effects Division (H7509C)

THRU: Edward Zager, Chief *Edward Zager*
Chemistry Branch II - Reregistration Support
Health Effects Division (H7509C)

TO: The Metabolism Committee
Health Effects Division (H7509C)

A. Individuals in Attendance:

1. Metabolism Committee: (Signatures indicate concurrence unless otherwise stated)

Richard Loranger

Richard Loranger

Michael Metzger

Michael Metzger

Alberto Protzel

Alberto Protzel

Reto Engler

Reto Engler

Richard Schmitt

Richard Schmitt

Karl Baetcke

Karl Baetcke

2. Scientists: (Non-committee members responsible for data presentation; signatures indicate concurrence with conclusion.)

R. Perfetti

R. Perfetti

W. Dykstra

William Dykstra

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contains at least 50% recycled fiber

3. Metabolism Committee Members in Absentia: (Committee members who were unable to attend the discussion; signatures indicate concurrence with the overall conclusions of the Committee)

George Ghali _____

Charles Frick _____

B. Material Reviewed:

The Committee discussed whether uses that result in significantly higher residues of aminomethylphosphonic acid (AMPA) in plants and livestock commodities in the future would require that AMPA be reintroduced into the tolerance expression of glyphosate. The Committee decided that, based on Toxicology considerations, AMPA need not be regulated regardless of levels observed in foods or feeds.

cc: Glyphosate Reregistration File, Glyphosate Subject File, D. Edwards/TSCB, Metabolism Committee File, Circ., RF, L. Rossi/SRRD and RBP.

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

February 23, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Glyphosate Tolerance Expression Meeting**
Memorandum of Understanding

Dear Sir:

On February 10, Monsanto met with the EPA to discuss the Agency's proposal to remove the metabolite aminomethylphosphonic acid (AMPA) from the glyphosate tolerance expression. Attending for EPA were Wesley Allen, William Dykstra, Rick Loranger, Michael Metzger, Randy Perfetti, Mary Peters, and Robert Quick. Attending for Monsanto were William Goure, Charles Hastings, Russ Schneider and me.

Monsanto requested the meeting to ensure that the Agency was aware that we are developing crops that are tolerant to glyphosate and that metabolism and residue studies on these crops demonstrate that AMPA will be a greater component of the total residue. In fact, in some crops, AMPA will be the major residue. Monsanto presented a summary of the metabolism and residue data we have developed for glyphosate-tolerant soybeans, which is the first crop we plan to commercialize in the US. Monsanto also presented an overview of the toxicological studies that have been conducted on AMPA. Copies of the overheads used in the presentation are attached for your files. Monsanto will submit the full studies in the next few months to support our request to label Roundup® herbicide for use over the top of glyphosate-tolerant soybeans.

Subsequently, metabolism committee met and dropped AMPA from the glyphosate tolerance expression.

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During the presentation, there were several questions for clarification and general interest about this new technology. During the discussion, these specific points were addressed:

- The Agency confirmed that if AMPA were removed from the glyphosate tolerance expression, then AMPA residues would not be included in the tolerance value. For example, if there is an existing glyphosate tolerance for a crop at 0.1 ppm and a new use in that crop were to result in glyphosate residue levels below 0.1 ppm and AMPA residues above 0.1 ppm, then a new tolerance would *not* be required. The Agency confirmed that such a commodity would not contain illegal residues and therefore could not be seized by FDA.
- Monsanto plans to request a feeding / grazing restriction on soybean forage. The Agency noted that there would be a notice for public comment on these types of restrictions later this year, but that Monsanto could request the restriction in our submission. It was determined that placing the restriction on the seed bag rather than the herbicide label would likely not be enforceable.
- Monsanto will continue to analyze residue samples for both glyphosate and AMPA residues since the same analytical method is used for both. The data on AMPA would then be available if it were needed for risk assessment.
- Dr. Schneider noted that glyphosate-tolerant soybeans will grown be at a demonstration plot near Washington, D.C. this summer and invited anyone who was interested in this new technology to visit the site; Monsanto will arrange the tours.

In summary, the Agency concluded that the new information we presented on glyphosate-tolerant crops would not change their recommendation to remove AMPA from the tolerance expression, as long as there were no unexpected results in the final reports. Monsanto agrees with the Agency's decision to remove AMPA from the glyphosate tolerance expression and requests that this decision be formalized by granting an exemption from tolerance for AMPA.

If you have any questions, please contact Russ Schneider or me.

Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

January 5, 1995

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

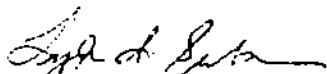
Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Submit Final Printed Supplemental Label - Shielded Applicator
Use in Grasses Grown for Seed in Idaho, Oregon & Washington
only.

Dear Sir:

Attached are five (5) copies of a final printed supplemental label to allow the use of shielded applicator with Roundup herbicide in grasses grown for seed in the States of Idaho, Oregon and Washington. This supplemental label was approved on November 16, 1994.

If you have any questions regarding this submission, please contact Dr. Russell Schneider at our Washington office or me at 314-694-2124.

Sincerely,



Lydia A. Suba
Registration Manager

cc: R.P. Schneider
R.D. Voth
D.M. Fee-White

(A) 	United States Environmental Protection Agency Office of Pesticide Programs (H7505C) Washington, DC 20460 Application for Pesticide:	<input type="checkbox"/> Registration <input type="checkbox"/> Amendment <input checked="" type="checkbox"/> Other	OPP Identifier Number <div style="font-size: 24pt; text-align: center;">207793</div>
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Section I

1. Company/Product Number <div style="text-align: center;">524-445</div>	2. EPA Product Manager <div style="text-align: center;">Robert J. Taylor</div>	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) <div style="text-align: center;">Roundup® Herbicide</div>	PM# <div style="text-align: center;">25</div>	
5. Name and Address of Applicant (Include ZIP Code) <div style="text-align: center;"> Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005 </div> <div style="margin-top: 10px;"> <input type="checkbox"/> Check if this is a new address </div>		6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____

Section II

<input type="checkbox"/> Amendment - Explain below <input type="checkbox"/> Resubmission in response to Agency letter dated _____ <input type="checkbox"/> Notification - Explain below.	<input checked="" type="checkbox"/> Final printed labels in response to Agency letter dated <div style="text-align: center;">11/16/94</div> <input type="checkbox"/> "Me Too" Application. <input type="checkbox"/> Other - explain below.
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of final printed label for shielded applicator use in grasses grown for seed in Idaho, Oregon and Washington only

Section III

1. Material This Product Will Be Packaged In:					
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2. Type of Container: <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____		
* Certification must be submitted. If "Yes," Unit Package wgt. _____ No. per container _____		If "Yes," Package wgt. _____ No. per container _____			
3. Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) of Retail Container _____		5. Location of Label Directions <input type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
6. Manner In Which Label Is Affixed To Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Other (_____) <input type="checkbox"/> Stenciled					

Section IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name <div style="text-align: center;">Dr. Russell P. Schneider</div>	Title <div style="text-align: center;">Agricultural Regulation Director</div>	Telephone No. (Include Area Code) <div style="text-align: center;">(202) 783-2450</div>
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		
2. Signature 	3. Title <div style="text-align: center;">Registration Manager</div>	
4. Typed Name <div style="text-align: center;">Lydia A. Suba</div>	5. Date <div style="text-align: center;">1/5/95</div>	
6. Date Application Received (Stamped) <div style="text-align: right; font-size: 24pt;">58</div>		

PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). (If not exempted by 40 CFR 152.81 (b) (4));
2. Confidential Statement of Formula (EPA Form 8570-4);
3. Formulator's Exemption Statement (EPA Form 8570-27);
4. Five copies of draft labeling;
5. Three copies of any data submitted;
6. Authorization letter where applicable;
7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission.

Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

1. **Company/Product Number** - Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
2. **EPA Product Manager** - If known, fill in the name and PM number of the EPA Product Manager.
3. **Proposed Classification** - Specify the proposed classification of this product.
4. **Product Name** - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
5. **Name and Address of Applicant** - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
6. **Expedited Review** - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. **Subject of Submission** - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. **Type of Packaging** - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.
2. **Type of Retail Container** - Indicate type of container in which product will be marketed.
3. **Location of Net Contents** - Specify the net contents of all retail containers for your product.
4. **Size(s) of Retail Container** - Specify the net contents of all retail containers for your product.
5. **Location of Use Directions** - Indicate the location of the use directions for your product.
6. **Number in which label is affixed to product** - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "me-too," reregistration, etc.

- 1-3. Self-explanatory.
6. EPA Use Only.

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[Handwritten signature]	
[Handwritten text]	

SUPPLEMENTAL LABELING

READ AND FOLLOW THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING

"Label" as used in this supplemental labeling refers to the label booklet for Roundup herbicide and this supplement.

NOT REVIEWED
In Accordance with PR Notice 82-2,
Based on Draft Labeling Dated 11/16/94

Roundup
Herbicide by Monsanto

EPA Reg. No. 524-445

**SHIELDED APPLICATOR USE IN GRASSES GROWN FOR SEED
IN IDAHO, OREGON AND WASHINGTON ONLY.**

Keep out of reach of children.

WARNING! AVISO!

In case of emergency involving this product, Call Collect, day or night, (314) 694-4000.

Roundup® is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with the labeling.

This label must be in the possession of the user at the time of the herbicide application.

When applied using shielded applicator equipment designed to prevent direct contact, movement of spray droplets, or mist onto desirable grasses grown for seed production, this product may be used to control labeled weeds. Use of low spray pressure through low pres-

sure nozzles will minimize the potential of spray drift.

Apply 1 to 3 quarts of this product per acre as a broadcast spray in 10 to 20 gallons of total spray volume per acre.

Uniform planting in straight rows aid in shielded sprayer applications. Best results are obtained when the grass seed crop is small enough to easily pass by or through the protective shields.

**GROWER ASSUMES ALL
RESPONSIBILITY FOR
CROP LOSSES FROM MIS-
APPLICATION.**

Read "LIMIT OF WARRANTY AND LIABILITY" in the label booklet for Roundup before using this product. Those terms apply to this supplemental labeling and, if those terms are not acceptable, return the product unopened at once.

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MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

21001S1-34 December 19, 1994

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

November 23, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Submission of Final Printed Labels:
Supplemental Label for Seed Production of Soybeans with the
Roundup Ready™ Gene

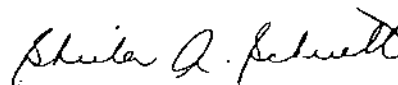
Dear Sir:

Monsanto is submitting final printed labels of a Roundup® herbicide supplemental label for your files. This supplemental label, which allows the use of Roundup herbicide in the production of soybean seeds with the Roundup Ready gene, was approved by the Agency on August 11, 1994.

Enclosed are five (5) copies of the label (version 21001S1-25).

If you have any questions regarding this submission, please contact Dr. Russ Schneider or me.


Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider

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(A) 	United States Environmental Protection Agency Office of Pesticide Programs (H7505C) Washington, DC 20460	<input type="checkbox"/> Registration <input type="checkbox"/> Amendment <input checked="" type="checkbox"/> Other	OPP Identifier Number 207730
	Application for Pesticide:		

Section I

1. Company/Product Number 524-445	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Roundup® Herbicide	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section II

<input type="checkbox"/> Amendment - Explain below	<input checked="" type="checkbox"/> Final printed labels in response to Agency letter dated 8/11/94
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - explain below.

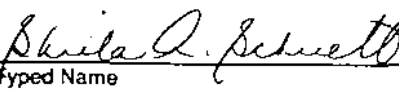
Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of supplemental label for seed production of soybeans with the Roundup Ready™ gene.

Section III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Metal	<input checked="" type="checkbox"/> Plastic
				<input type="checkbox"/> Glass	<input type="checkbox"/> Paper
				<input type="checkbox"/> Other (Specify) _____	
* Certification must be submitted.					
3. Location of Net Contents Information <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container	4. Size(s) of Retail Container various	5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input checked="" type="checkbox"/> On Labeling-accompanying product			
6. Manner In Which Label Is Affixed To Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input checked="" type="checkbox"/> Other (vinyl glued)			

Section IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Dr. Russell P. Schneider	Title Agricultural Regulation Director	Telephone No. (Include Area Code) (202) 783-2460
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped)
2. Signature 	3. Title Manager, Regulatory Affairs	62
4. Typed Name Sheila A. Schuette, Ph.D.	5. Date Nov. 23, 1994	

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup, container labels and this supplement.

Roundup
Herbicide by **Monsanto**

NOT REVIEWED.
In Accordance with FR Notice 68-24
Based on Product Labeling Data 6/11/74

EPA Reg. No. 524-445

USE ONLY FOR SEED PRODUCTION OF SOYBEANS WITH THE ROUNDUP READY™ GENE

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

Roundup® is a registered trademark of Monsanto Company.

Roundup Ready™ is a trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup for essential product performance information.

NOTE: THIS PRODUCT MAY BE USED FOR CONTROL OF NON-GLYPHOSATE TOLERANT SOYBEANS IN PRODUCTION FIELDS

OF SOYBEANS CONTAINING THE ROUNDUP READY™ GENE. SEVERE INJURY OR DEATH WILL RESULT IF SOYBEAN VARIETIES WHICH DO NOT CONTAIN THE ROUNDUP READY GENE ARE SPRAYED WITH THIS PRODUCT. AVOID CONTACT OF THE SPRAY WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS AND TREES, OTHER THAN SOYBEANS WITH THE ROUNDUP READY GENE, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

USE RECOMMENDATIONS

When applied as directed under the conditions described, this product will control non-glyphosate tolerant soybeans in seed production fields

of soybeans containing the Roundup Ready gene. This product may be applied using ground spray equipment only. Apply 1 quart of this product plus 0.5 to 1.0% nonionic surfactant by total spray volume in 5 to 20 gallons of spray solution per acre as a broadcast spray.

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT.

Application Timing — This product can be applied to Roundup Ready Soybeans from the cracking stage through the flowering stage.

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MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

21C0101-25

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Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

December 19, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Submission of Final Printed Labels / Red Rice Control in Texas

Dear Sir:

Monsanto is submitting final printed labels of a supplemental label for Roundup herbicide for your files. This label, which allows the use of up to 1.5 quarts/acre of Roundup for the control of red rice in Texas, was approved by the Agency on November 16, 1994. This label will be distributed in Texas only.

Enclosed are five (5) copies of the label (version 21001S1-36).

If you have any questions regarding this submission, please contact Dr. Russ Schneider or me.

Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider

(A)



United States Environmental Protection Agency
Office of Pesticide Programs (H7505C)
Washington, DC 20460

Application for Pesticide:

☐ Registration
☐ Amendment
☒ Other

OPP Identifier Number

207739

Section I

1. Company/Product Number 524-445	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Roundup® Herbicide	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005 <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____

Section II

<input type="checkbox"/> Amendment - Explain below	<input checked="" type="checkbox"/> Final printed labels in response to Agency letter dated 11/16/94
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Final printed labels: Supplemental label for Red Rice Control in Texas.

Section III

1. Material This Product Will Be Packaged In:			
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2. Type of Container <input type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
* Certification must be submitted.		If "Yes," Unit Package wgt.	No. per container
3. Location of Net Contents Information <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container		4. Size(s) of Retail Container Various	5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input checked="" type="checkbox"/> On Labeling accompanying product
6. Manner in Which Label is Affixed To Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input checked="" type="checkbox"/> Other (vinyl glued)	

Section IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Dr. Russell P. Schneider	Title Agricultural Regulations Director	Telephone No. (Include Area Code) (202) 783-2460
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped) DEC 19 1994
2. Signature <i>Sheila A. Schuette</i>	3. Title Manager, Regulatory Affairs	
4. Typed Name Sheila A. Schuette, Ph.D.	5. Date Dec. 19, 1994	

PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, and use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). (If not exempted by 40 CFR 152.81 (b) (4));
2. Confidential Statement of Formula (EPA Form 8570-4);
3. Formulator's Exemption Statement (EPA Form 8570-27);
4. Five copies of draft labeling;
5. Three copies of any data submitted;
6. Authorization letter where applicable;
7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission.

Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

1. **Company/Product Number** - Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
2. **EPA Product Manager** - If known, fill in the name and PM number of the EPA Product Manager.
3. **Proposed Classification** - Specify the proposed classification of this product.
4. **Product Name** - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
5. **Name and Address of Applicant** - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
6. **Expedited Review** - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. **Subject of submission** - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. **Type of Packaging** - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.
2. **Type of Retail Container** - Indicate type of container in which product will be marketed.
3. **Location of Use Contents** - Specify the net contents of all retail containers for your product.
4. **Size(s) of Retail Container** - Specify the net contents of all retail containers for your product.
5. **Location of Use Directions** - Indicate the location of the use directions for your product.
6. **Manner in which label is affixed to product** - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "me-too," reregistration, etc.

- 1-5. Self-explanatory.
6. EPA Use Only.

1999.01.20

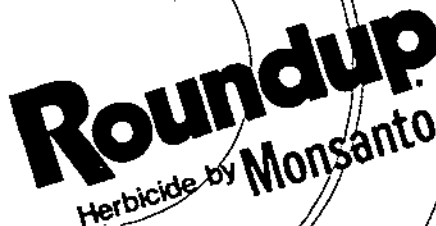
DATE

66

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.



Roundup
Herbicide by Monsanto

EPA Reg. No. 524-445

NOT REPEATED
In accordance with FR Notice 01-11
Based on Draft Labeling Dated 11/11

RED RICE CONTROL IN TEXAS ONLY.

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

Roundup® is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup herbicide for essential product performance information.

RECOMMENDATIONS

This product may be used to control red rice, prior to planting rice. Apply 1 1/2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Use surfactants with a minimum of 70 percent active ingredient. Add 17 pounds of ammonium sulfate per 100 gallons of water.

Flush fields prior to applications to obtain uniform germination and stand of red rice. Make applications when the majority of the red rice plants are in the 2-leaf stage and no more than 4 inches tall. Red rice plants with less than 2 true leaves may only be partially controlled. Do not treat rice fields or levees when the fields contain flood water.

For aerial applications, drift control additives may be used.

Avoid spraying during low humidity conditions, as reduced control may result.

Do not re-flood treated fields for 8 days following application.

Read the "Limit of Warranty and Liability" in the label booklet for Roundup herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

© Monsanto Company 1994

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

21001S1-36

NOV 16 1994

Ms. Lydia A Suba
Monsanto Company
700 14th Street, N.W. Suite #1100
Washington, D.C. 20005

Dear Ms. Suba:

Subject: Roundup Herbicide (Shielded Applicator For Grasses Grown for Seed)
EPA Registration No. 524-445
Your Letter Dated October 3, 1994

The labeling referred to above submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. Please submit five (5) copies of your final printed labeling before you release the product for shipment. A stamped copy of labeling is enclosed for your records.

Sincerely,

Robert J. Taylor
Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (7505C)

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SUPPLEMENTAL LABELING

READ AND FOLLOW THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup herbicide and this supplement.

ROUNDUP®

HERBICIDE BY MONSANTO

EPA Reg. No. 524-445

SHIELDED APPLICATOR USE IN GRASSES GROWN FOR SEED IN IDAHO, OREGON AND WASHINGTON ONLY.

Keep out of reach of children.

WARNING!

In case of emergency involving this product, Call Collect, day or night, 314-694-4000.

Roundup® is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

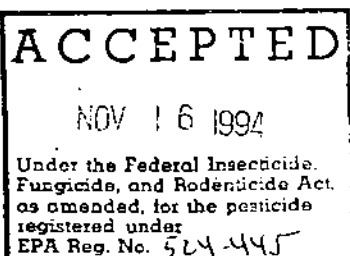
It is a violation of Federal law to use this product in any manner inconsistent with the labeling.

This label must be in the possession of the user at the time of the herbicide application.

When applied using shielded applicator equipment designed to prevent direct contact, movement of spray droplets, or mist onto desirable grasses grown for seed production, this product may be used to control labeled weeds. Use of low spray pressure through low pressure nozzles will minimize the potential of spray drift.

Apply 1 to 3 quarts of this product per acre as a broadcast spray in 10 to 20 gallons of total spray volume per acre.

Uniform planting in straight rows aid in shielded sprayer applications. Best results are obtained when the grass seed crop is small enough to easily pass by or through the protective shields.



GROWER ASSUMES ALL RESPONSIBILITY FOR CROP LOSSES FROM
MISAPPLICATION.

Read "LIMIT OF WARRANTY AND LIABILITY" in the label booklet for
Roundup before using this product. Those terms apply to this
supplemental labeling and, if those terms are not acceptable,
return the product unopened at once.

©MONSANTO COMPANY 1994

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

SUBMISSION REVIEW RECORD		1. REGISTRATION NUMBER		CYCLE		DATE RECEIVED	
G		524-445		110		014914	
3. 300 PUBLICATION NECESSARY <input type="checkbox"/> YES <input type="checkbox"/> NO		4. PETITION NO.				5. RECEIVED BY TEAM NO DAY YR	
5. METHOD OF SUPPORT <input type="checkbox"/> 1A <input type="checkbox"/> 2B <input type="checkbox"/> 2C		7. PRODUCT MANAGER				8. PROJECTED RETURN NO DAY YR	
9. DATE POLLED 11/10/94		10. DATE PUBLISHED		11. ACTION TYPE Special Application Use in shows given for seed 300		12. OUTGOING DATE NO DAY YR	
REV. SEQ.	REV. TYPE CODE	REVIEW TYPE	REVIEWER CODE (Initials)	SIGNATURE OF REVIEWER	COM. MENT CODE	DATE REVIEW COMPLETED NO DAY YR	
	A	REVIEWABILITY TEAM					
	B	PRODUCT MANAGER TEAM EFFICACY REVIEW					
	C	PRODUCT MANAGER TEAM HUMAN SAFETY REVIEW					
	D	PRODUCT MANAGER TEAM ENVIRONMENTAL SAFETY REVIEW					
	E	PRODUCT MANAGER TEAM RESUBMISSION REVIEW					
	F	PRODUCT MANAGER		VYW	NAC	11	110914
	G	INTERAGENCY REFERRAL					
	H	COST-BENEFIT REVIEW					
	I	PUBLIC COMMENTS REVIEW					
	J	EEE BRANCH INSECTICIDE EFFICACY					
	K	EEE BRANCH HERBICIDE EFFICACY					
	L	EEE BRANCH FUNGICIDE EFFICACY					
	M	EEE BRANCH RODENTICIDE EFFICACY					
	N	EEE BRANCH DISINFECTANT EFFICACY					
	O	CHEMISTRY BRANCH RESIDUE CHEMISTRY					
	P	EEE BRANCH ENVIRONMENTAL CHEMISTRY					
	Q	TOXICOLOGY BRANCH HUMAN SAFETY					
	R	EEE BRANCH ENVIRONMENTAL SAFETY					
	S						
	T						
PRODUCT MANAGER SIGNATURE			TYPE OF RESPONSE			CODE	

(A) United States Environmental Protection Agency Office of Pesticide Programs (H7505C) Washington, DC 20460	Application for Pesticide: <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> <input type="checkbox"/> Registration <input type="checkbox"/> Amendment <input checked="" type="checkbox"/> Other </div> <div style="border: 1px solid black; padding: 2px; text-align: center;"> OPP Identifier Number 207646 </div> </div>

Section I

1. Company/Product Number 524-445	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <div style="display: flex; justify-content: space-around;"> <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted </div>
4. Company/Product (Name) Roundup® Herbicide	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005 <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____

Section II

<input checked="" type="checkbox"/> Amendment - Explain below <input type="checkbox"/> Resubmission in response to Agency letter dated _____ <input type="checkbox"/> Notification - Explain below.	<div style="border: 1px solid black; padding: 2px;"> <input type="checkbox"/> Final printed labels in response to Agency letter dated _____ <input type="checkbox"/> "Me Too" Application. <input type="checkbox"/> Other - explain below. </div>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submit supplemental label

Section III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If "Yes," Unit Package wgt.	No. per container	<input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
* Certification must be submitted.		If "Yes," Package wgt.	No. per container		
3. Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) of Retail Container		5. Location of Label Directions <input type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed To Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Other (_____) <input type="checkbox"/> Stenciled					

Section IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Dr. Russell P. Schneider	Title Agricultural Regulation Director	Telephone No. (Include Area Code) (202) 783-2460

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

 6. Date Application Received
 (Stamped)

2. Signature 	3. Title Registration Manager	72
4. Typed Name Lydia A. Suba	5. Date 10/3/94	

PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification With Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];
2. Confidential Statement of Formula (EPA Form 8570-4);
3. Formulator's Exemption Statement (EPA Form 8570-27);
4. Five copies of draft labeling;
5. Three copies of any data submitted;
6. Authorization letter where applicable;
7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission.

Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

1. **Company/Product Number** - Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
2. **EPA Product Manager** - If known, fill in the name and PM number of the EPA Product Manager.
3. **Proposed Classification** - Specify the proposed classification of this product.
4. **Product Name** - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
5. **Name and Address of Applicant** - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
6. **Expedited Review** - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. **Subject of submission** - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. **Type of Packaging** - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.
2. **Type of Retail Container** - Indicate type of container in which product will be marketed.
3. **Location of Net Contents** - Specify the net contents of all retail containers for your product.
4. **Size(s) of Retail Container** - Specify the net contents of all retail containers for your product.
5. **Location of Use Directions** - Indicate the location of the use directions for your product.
6. **Manner in which label is affixed to product** - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "me-too," reregistration, etc.

- 1-5. Self-explanatory.
6. EPA Use Only.

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

October 3, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

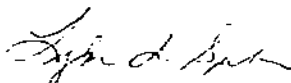
Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Submit Supplemental Label - Shielded Applicator Use in Grasses
Grown for Seed in Idaho, Oregon & Washington only.

Dear Sir:

Attached are five (5) copies of a supplemental label for your review and approval to allow the use of shielded applicator with Roundup herbicide in grasses grown for seed in the States of Idaho, Oregon and Washington.

Please stamp one copy of this label for our use in state registrations. If you have any questions regarding this submission, please contact Dr. Russell Schneider at our Washington office or me at 314-694-2124.

Sincerely,



Lydia A. Suba
Registration Manager

cc: R.P. Schneider
R.D. Voth
D.M. Fee-White
D.A. Humphrey

NOV 16 1994

Ms. Lydia A Suba
Monsanto Company
700 14th Street, N.W. Suite #1100
Washington, D.C. 20005

Dear Ms. Suba:

Subject: Roundup Super Concentrate Grass & Weed Killer (Add Use Directions for
Ortho Spray N Dial)
EPA Registration No. 524-445
Your Letter Dated October 18, 1994

The labeling referred to above submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. Please submit five (5) copies of your final printed labeling before you release the product for shipment. A stamped copy of labeling is enclosed for your records.

Sincerely,

Robert J. Taylor ^{WKC}
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (7505C)

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ROUNDUP Super Concentrate Grass & Weed Killer, EPA Reg. No. 524-445

For Roundup Super Concentrate Weed & Grass Killer

COPY A

Use pump-up-type, hand-trigger type or ORTHO DIAL 'n SPRAY hose-end sprayer to apply this product. Triple-rinse sprayer and flush all sprayer components with water after use to remove residues of this product. After very thorough cleaning, equipment may be used to apply other products. Apply rinse waters to undesirable plants not previously sprayed.

COPY B

Do not apply this product through any type of irrigation system or sprinkler-type devices. These applications may result in poor and/or erratic results.

COPY C

[Directions for ORTHO DIAL 'n SPRAY]

For large jobs such as lawn renovation, brush control or large garden/ornamental planting bed preparation this product may be used in an ORTHO DIAL 'n SPRAY hose-end sprayer. Pour undiluted product into sprayer container. DO NOT ADD WATER. Set dial to 1 1/2 fl oz for annuals or 2 1/2 fl oz for lawn renovation and brush control.

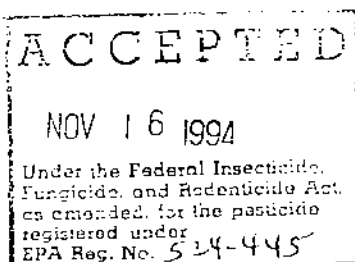
COPY D

This product can be used to refill Roundup Ready-To-Use Weed & Grass Killer carefully following label directions.

COPY E

USE TO REFILL ROUNDUP READY-TO-USE

COPY F



Roundup®

SUPER CONCENTRATE

by Monsanto

Weed & Grass Killer

[graphics of weeds dying in 1-14 days]

- MIX WITH WATER TO MAKE UP TO XX GALLONS OF SPRAY SOLUTION
(varies with container size)
- COVERS UP TO XX SQ. FT. (varies with container size)
- DOES NOT HAVE SOIL ACTIVITY
- KILLS UNWANTED WEEDS AND GRASSES, ROOTS AND ALL
- SYSTEMIC ACTION -- KILLS ROOTS AND ALL.
- KILLS WEEDS ROOTS AND ALL
- SPRAY WEEDS IN FLOWER BEDS AND AROUND FENCES, TREES,
DRIVEWAYS, WALKWAYS AND SHRUBS
- USE TO PREPARE GARDEN SITES AND TO RENOVATE LAWNS
- ECONOMICAL- MIX 3 TO 5 TABLESPOONS (1½ - 2½ OZ) PER GALLON
- SATISFACTION GUARANTEED OR YOUR MONEY BACK

COPYE →

Keep out of reach of children.

WARNING Read precautions and directions in and on back label.

ACTIVE INGREDIENT:

Glyphosate, N-(phosphonomethyl)glycine, in the form of its isopropylamine salt	41.0%
INERT INGREDIENTS	59.0%
	<hr/> 100.0%

Net 32 fl. oz. (1 qt.) (print plate number)

READ THE ENTIRE LABEL BEFORE USING THIS PRODUCT. USE ONLY ACCORDING TO THE DIRECTIONS IN THE LABEL AND OBSERVE ALL PRECAUTIONS.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

WARNING

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY.

HARMFUL IF SWALLOWED OR INHALED.

Do not get in eyes or on clothing.

Wear safety glasses.

Avoid breathing vapor or spray mist.

Wash thoroughly with soap and water after handling.

Remove contaminated clothing and wash before reuse.

FIRST AID: IF IN EYES, immediately hold eyelids open and flush with plenty of water for at least 15 minutes. Get medical attention.

IF INHALED, remove individual to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

IF SWALLOWED, this product will cause gastrointestinal tract irritation. Immediately dilute by swallowing water or milk. Get medical attention.

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000. *[picture of telephone receiver]*

NOTICE: BUYER ASSUMES ALL RESPONSIBILITY FOR SAFETY AND USE NOT IN ACCORDANCE WITH DIRECTIONS. IF THESE TERMS ARE NOT ACCEPTABLE, RETURN AT ONCE UNOPENED. *(moved from inside label)*

Environmental Hazards

Do not apply directly to water. ~~, or to areas where surface water is present, or to intertidal areas below the mean high water mark.~~ Do not contaminate water when disposing of equipment washwaters.

PRECAUTION: SEE "DIRECTIONS FOR USE" FOR IMPORTANT CONTAINER
PRECAUTIONS, and inside label for storage and disposal
information.

This product is protected by U.S. Patent No. 4,405,531. Other
patents pending. No license granted under any non-U.S. patent(s).
(bar code)

REFORMULATION OR REPACKAGING FOR SALE IS PROHIBITED.
(moved from inside label)

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MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167 U.S.A.

EPA Reg. No. 524-445
EPA Est. 524-LA-1

(print plate number)

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. **READ THE ENTIRE LABEL BEFORE USING THIS PRODUCT. USE ONLY ACCORDING TO THE FOLLOWING DIRECTIONS AND OBSERVE ALL PRECAUTIONS.**

Roundup® Super Concentrate Weed and Grass Killer, when absorbed by contacted foliage, is carried throughout the stems and roots to give complete kill of tough annual and perennial weeds and grasses. Roundup is broken down in the soil by microbes. Once in contact with soil, it has no more weed killing activity and will not move in or on the soil to affect nearby plants.

[proof of purchase]

HOW TO USE

IMPORTANT: This product is an all-purpose weed, grass, and brush killer which can injure or kill all plants contacted (virtually anything that is green and growing). **APPLY ONLY WHEN AIR IS CALM. AVOID SPRAY CONTACT ON DESIRABLE PLANTS. IF NECESSARY, SHIELD DESIRABLE PLANTS TO PREVENT CONTACT WITH SPRAY.** If spray or drift accidentally contacts desirable plants, wash off immediately with water. Rainfall within 6 hours could affect performance. Avoid mowing, cutting or otherwise disturbing sprayed plants for at least 7 days. People and pets should stay off sprayed area until thoroughly dry to ensure that product is not tracked into areas where desirable plants are growing.

SPRAY EQUIPMENT

2074A-7 ~~Use pump up type or hand-trigger type sprayers to apply this product. Triple-rinse sprayer and flush all sprayer components with water after use to remove residues of this product. After very thorough cleaning, equipment may be used to apply other products. Apply rinse waters to undesirable plants not previously sprayed.~~

WARNING: Mix, spray, apply and store solutions of this product only in stainless steel, aluminum, fiberglass, plastic or plastic-lined steel sprayers. **DO NOT MIX, APPLY, OR STORE THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) SPRAYERS,** because the product and such containers can react to produce a highly combustible mixture of hydrogen gas. This buildup of hydrogen gas in a closed container can create enough pressure to cause the container to rupture, or can flash or explode, causing serious personal injury, if ignited by open flame, spark, welders torch, lit cigarette or any other ignition source.

2074B-7 ~~Do not apply this product through any type of irrigation system, nor use in hose-end sprayers or sprinkler-type devices. These applications may result in poor and/or erratic results.~~

ROUNDUP® SUPER CONCENTRATE

USE DIRECTIONS TABLE

Follow mixing rate recommendations in this Use Directions Table. Ensure uniform and complete spray coverage. Sprayed plants usually show effects within 7 days, with complete kill in 2 to 4 weeks. For best results, apply to actively growing undesirable weeds, grasses, trees, brush and plants in warm, sunny weather. If not completely killed within 4 weeks, repeat application. In some cases, control of brush and trees sprayed in the fall may not be fully apparent until the following season. Sprayed areas can be reseeded or replanted, 7 days after spraying.

USES	SPRAYING INSTRUCTIONS	WEEDS CONTROLLED	MIXING RATE
SPOT SPRAYING/TRIM and EDGE Undesirable plants in and around: <ul style="list-style-type: none"> • fences • trees* • driveways • flower beds • walkways • shrubs 	Apply to actively growing plants. Apply to annual weeds anytime after emergence. For perennial weeds, apply after seed heads or flowers appear. Avoid spray contact with foliage, stems or green bark of desirable plants.	Most annual and perennial weeds and grasses such as chickweed, ragweed, dandelion (Complete list follows this table).	ANNUALS - 1½ fl oz (3 tbsps) per 1 gallon water PERENNIALS and BRUSH - 2½ fl oz (5 tbsps) per 1 gallon water 1) Use clean water. 2) Ensure uniform and complete spray coverage. Position sprayer tip 1-2 feet from weeds.
LAWN RENOVATION <ul style="list-style-type: none"> • Replacement of worn out lawns • Changing to more desirable grass 	For best results on lawns, skip at least one mowing prior to spraying. Delay reseeding, sprigging, tilling or sodding for 7 days after spraying. Early spring or fall spraying recommended.		
GARDEN/ORNAMENTAL BED PREPARATION FOR PLANTING: <ul style="list-style-type: none"> • Flowers • Trees, Shrubs • Vegetables • Berries and small fruits 	Any ornamental may be planted 7 days after spraying. Vegetables, berries and small fruits may be planted 7 days after spraying. (Complete list follows this table.)		
BRUSH CONTROL TO KILL: <ul style="list-style-type: none"> • Woody brush • Trees • Vines 	Spray when leaves are fully expanded (spring-early summer) or when flowers or berries appear (mid-summer - fall). Spray trees and brush up to 5 feet in height. For taller plants, cut down and spray regrowth.	Most brush, such as poison ivy, blackberry and kudzu (Complete list follows).	

*Note: If Roundup is used to control undesirable plants around fruit or nut trees or grapevines, allow 21 days before eating the fruits or nuts.

COPY C - 7
COPY D - 2

label conc 41% (EPA REG NO 524-445)

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WEEDS CONTROLLED

When applied as recommended under the conditions described in the Use Directions Table. Roundup Super Concentrate controls many common weeds including the following:
[pictures of several common weeds]

Annuals

Barnyardgrass	Pennycress (field)
Bluegrass (annual)	Pigweed (redroot, smooth)
Chickweed	Ragweed (common)
Crabgrass	Ryegrass (annual)
Foxtail	Sandbur (field)
Lambsquarter (common)	Shepherdspurse
Lettuce (prickly)	Sowthistle
Mustard (tansy)	

Perennials

Bahiagrass	Fescue (tall)
Bermudagrass	Johnsongrass
Bindweed (field)	Nutsedge (purple, yellow)
Bluegrass (Kentucky)	Orchardgrass
Bromegrass (smooth)	Quackgrass
Clover (red, white)	Ryegrass (perennial)
Dallisgrass	Thistle (Canada)
Dandelion	Timothy
Fescue species	Vaseygrass

Brush

Alder	Poison Ivy
Blackberry	Poison Oak
Cherry	Raspberry
Dewberry	Rose (multiflora)
Elderberry	Sumac
Honeysuckle	Trumpet creeper
Kudzu	Willow
Oak	

VEGETABLES, SMALL FRUITS AND BERRIES

The following vegetables, small fruits and berries may be planted (by seed, rooted cuttings or transplants) 7 days after spraying. If it is desired to plant vegetables, small fruits and berries other than those in the below list, wait for 30 days after spraying.

VEGETABLES

ARTICHOKE, JERUSALEM
ASPARAGUS
BEANS (ALL)
BEET GREENS
BEETS (RED, SUGAR)
BROCCOLI (ALL)
BRUSSELS SPROUTS
CABBAGE (ALL)
CANTALOUPE
CARROT
CAULIFLOWER
CASABA MELON
CELERY
CHARD, SWISS
CHICORY
COLLARDS
CORN
CRENSHAW MELON
CUCUMBER
EGGPLANT
ENDIVE
GARLIC
GOURDS
GROUND CHERRY
HONEYDEW MELON
HONEY BALL MELON
HORSERADISH
KALE
KOHLRABI
LEEK
LENTILS
LETTUCE
MANGO MELON
MELONS (ALL)
MUSKMELON
MUSTARD GREENS
OKRA
ONION
RAPE GREENS
PARSLEY
PARSNIPS
PEAS (ALL)
PEPPER (ALL)
PERSIAN MELON
POTATO (IRISH, SWEET)
PUMPKIN
RADISH

RHUBARB
RUTABAGA
SPINACH (ALL)
SQUASH (SUMMER, WINTER)
TOMATILLO
TOMATO*
TURNIP
WATERCRESS
WATERMELON
YAMS

SMALL FRUITS AND BERRIES

BLACKBERRY
BLUEBERRY
BOYSENBERRY
CRANBERRY
CURRANT
DEWBERRY
ELDERBERRY
GOOSEBERRY
HUCKLEBERRY
LOGANBERRY
OLALLIEBERRY
RASPBERRY (BLACK, RED)
STRAWBERRY

*Tomatoes from seed only.
Wait 30 days for rooted
transplants.

STORAGE AND DISPOSAL

(moved from above)

Storage: Store this product only in its original container and in a secured storage area. Protect container from freezing.

PRODUCT DISPOSAL:

- Monsanto is committed to responsible environmental practices and recommends that all of the product be used up, carefully following all label directions and precautions.
- If necessary to dispose of partially filled product container, then securely wrap it in several layers of newspaper and discard in trash.

EMPTY CONTAINER:

- Do not reuse container. Emptied container retains vapor and product residue. Observe all labeled safeguards until container is discarded.
- Securely wrap empty container in several layers of newspaper and discard in trash.

SPILL OR LEAK: In case of spill or leak, soak up with paper towels and discard in trash.

For more product information or questions, call toll-free 1-800-225-2883, 8:30AM - 5:00PM Central Time. MONDAY-FRIDAY
(picture of telephone receiver)

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BACK PANEL
(AFFIXED TO CONTAINER)

READ THE ENTIRE LABEL BEFORE USING THIS PRODUCT. USE ONLY
ACCORDING TO THE DIRECTIONS IN THE USE DIRECTIONS TABLE AND
OBSERVE ALL PRECAUTIONS.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

WARNING

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY.

HARMFUL IF SWALLOWED OR INHALED.

Do not get in eyes or on clothing.

Wear safety glasses.

Avoid breathing vapor or spray mist.

Wash thoroughly with soap and water after handling.

Remove contaminated clothing and wash before reuse.

FIRST AID: IF IN EYES, immediately hold eyelids open and flush
with plenty of water for at least 15 minutes. Get medical
attention.

IF INHALED, remove individual to fresh air. If not breathing,
give artificial respiration, preferably mouth-to-mouth. Get
medical attention.

IF SWALLOWED, this product will cause gastrointestinal tract
irritation. Immediately dilute by swallowing water or milk.
Get medical attention.

In case of an emergency involving this product, Call Collect,
day or night, (314) 694-4000. [picture of telephone receiver]

NOTICE: BUYER ASSUMES ALL RESPONSIBILITY FOR SAFETY AND USE NOT
IN ACCORDANCE WITH DIRECTIONS. IF THESE TERMS ARE NOT
ACCEPTABLE, RETURN AT ONCE UNOPENED. (moved from inside label)

Environmental Hazards

Do not apply directly to water, ~~or to areas where surface water~~
~~is present, or to intertidal areas below the mean high water~~
~~mark.~~ Do not contaminate water when disposing of equipment
washwaters.

PRECAUTION: SEE "DIRECTIONS FOR USE" FOR IMPORTANT CONTAINER
PRECAUTIONS, and inside label for storage and disposal
information.

This product is protected by U.S. Patent No. 4,405,531. Other
patents pending. No license granted under any non-U.S. patent(s).

REFORMULATION OR REPACKAGING FOR SALE IS PROHIBITED

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MONSANTO COMPANY • AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167 U.S.A.

EPA Reg. No. 524-445
EPA Est. 524-LA-1

(print plate number)

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United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☒ Amendment
☐ Other

OPP Identifier Number

216240

Application for Pesticide - Section I

1. Company/Product Number 524-445	2. EPA Product Manager R. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Roundup Super Concentrate Grass & Weed Killer	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company Suite 1100 700 14th Street, N.W. Washington, DC 20005 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

<input checked="" type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

To add additional product language to support the use of the ORTHO DIAL' n SPRAY hose-end sprayer for large jobs, to allow for refill of the ready-to-use product and to add the American Zoological Association emblem.

We are complying with the Environmental Hazard water statement in PR Notice 93-8 for homeowner products.

Section - III

Material This Product Will Be Packaged In:			
Child-Resistant Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	2. Type of Container <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
Certification must be submitted if "Yes" Unit Packaging wgt. No. per container		if "Yes" Package wgt. No. per container	
Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container	5. Location of Label Directions <input type="checkbox"/>
Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input type="checkbox"/> Other _____	

Section - IV

Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Dr. Russell P. Schneider	Title Agricultural Regulation Director	Telephone No. (Include Area Code) 202-783-2460
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped)
Signature Katherine A. Buteau	3. Title Registration Specialist	
Typed Name Katherine A. Buteau	5. Date October 18, 1994	

PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PH-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];
2. Confidential Statement of Formula (EPA Form 8570-4);
3. Formulator's Exemption Statement (EPA Form 8570-27);
4. Five copies of draft labeling;
5. Three copies of any data submitted;
6. Authorization letter where applicable;
7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission.

Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

1. **Company/Product Number** - Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
2. **EPA Product Manager** - If known, fill in the name and PM number of the EPA Product Manager.
3. **Proposed Classification** - Specify the proposed classification of this product.
4. **Product Name** - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
5. **Name and Address of Applicant** - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
6. **Expedited Review** - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. Subject of submission - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. **Type of Packaging** - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.
2. **Type of Retail Container** - Indicate type of container in which product will be marketed.
3. **Location of Net Contents** - Specify the net contents of all retail containers for your product.
4. **Size(s) of Retail Container** - Specify the net contents of all retail containers for your product.
5. **Location of Use Directions** - Indicate the location of the use directions for your product.
6. **Owner in which label is affixed to product** - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "me-too," reregistration, etc.

- 1-5. Self-explanatory.
6. EPA Use Only.

SOLARIS

October 18, 1994

Mr. Robert J. Taylor, Product Manager 25
OPP Mailroom (H7505C)
US Environmental Protection Agency
401 M Street, SW
Washington, DC 20460

Dear Mr. Taylor:

Monsanto Company is requesting acceptance of label amendments for Roundup Super Concentrate Grass & Weed Killer, EPA Reg. No. 524-445. This product is sold by both the Solaris Group and the Agricultural Group of Monsanto Company under various names.

We are requesting approval of additional language for the homeowner label Roundup Super Concentrate Weed and Grass Killer which will allow the use of the ORTHO DIAL 'n SPRAY hose-end sprayer. Over the years, we have gotten many calls on our consumer affairs phone line, from consumers who are interested in using this application technique. This application method is appropriate for large jobs such as lawn renovation or brush control. Currently, this type of hose-end application is allowed on our ORTHO Systemic Weed & Grass Killer, EPA Reg. No. 239-2469. We believe that by readily providing applicator settings, we provide the homeowner with proper application rates.

Secondly, we are amending our label to reference dilution of this product into the Roundup Ready-To-Use bottle. Dilution instructions are only on the labelled ready-to-use bottle so that the consumer will dilute the product only into a properly labeled container. WEED-B-GON Weed Killer, EPA Reg. No. 239-2499 is labeled for refilling using WEED-B-GON Lawn Weed Killer. We believe proper refill instructions support both the proper use of products and the national goal of reducing household waste and encourage container reuse.

Thirdly, we are requesting approval of the placement of the American Zoological Association (AZA) emblem on our retail package. The AZA is the organization representing accredited zoos and aquariums in the US and Canada. Its mission is to serve as an educational and professional resource for species preservationists, zoos and aquariums around the world. Our Species Survival Plan supports the important work of this organization. By displaying this emblem, we create curiosity about the organization and provide a tool to further its goal of educating the public about endangered species. We make no claim for our product but believe the public service message for this organization is invaluable.

The Solaris Group

P.O. Box 5006 • 2527 Camino Ramon, Suite 200 • San Ramon, CA 94583 • (510) 355-3300 • Fax (510) 355-3530

A Division of The Agricultural Group of Monsanto Company

Ortho • Roundup • GreenSweep

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Mr. Robert J. Taylor


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October 18, 1994

Lastly, we are reducing the Environmental Hazards water statement as allowed by PR Notice 93-8.

If you have questions about this request, please contact Dr. Russell P. Schneider at 202-783-2460 or me at (510) 355-3339. Your attention to this matter at your earliest convenience is appreciated.

Sincerely,

A handwritten signature in cursive script, reading "Katherine A. Buteau".

Katherine A. Buteau
Registration Specialist

445epa.930

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NOV 16 1994

Ms. Lydia A Suba
Monsanto Company
700 14th Street, N.W. Suite #1100
Washington, D.C. 20005

Dear Ms. Suba:

Subject: Roundup Herbicide (Preplant Use With Hybrid Poplars)
EPA Registration No. 524-445
Your Letter Dated October 19, 1994

The labeling referred to above submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. Please submit five (5) copies of your final printed labeling before you release the product for shipment. A stamped copy of labeling is enclosed for your records.

Sincerely,

Robert J. Taylor *UKW*
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (7505C)

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SUPPLEMENTAL LABELING

READ AND FOLLOW THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup herbicide and this supplement.

ROUNDUP®

HERBICIDE BY MONSANTO

EPA Reg. No. 524-445

ROUNDUP HERBICIDE FOR USE IN HYBRID POPLAR (*Populus spp.*) PRODUCTION.

Keep out of reach of children.

WARNING!

In case of emergency involving this product, Call Collect, day or night, 314-694-4000.

Roundup® is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with the labeling.

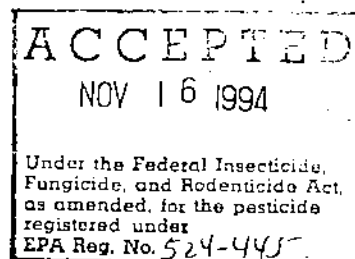
This label must be in the possession of the user at the time of the herbicide application.

See "General Information" and "Mixing, Additives, and Application Instructions" sections of the Roundup herbicide label booklet for essential product performance information.

PREPLANT

This product is recommended for use prior to planting *Populus* spp. This includes, but is not limited to hybrid poplars and hybrid cottonwoods.

See the Roundup herbicide label booklet for specific rates for the weeds being controlled.



IN CROP USES

DIRECTED SPRAYS

Use a 2 percent spray solution as a spray-to-wet application for the control of undesirable woody brush and trees. To control herbaceous weeds, use a 1 to 2 percent solution. Avoid contact of spray, drift, or mist with foliage, green bark or non-woody surface roots of the *Populus* spp.

Mix 2 to 6 quarts of a nonionic surfactant per 100 gallons of spray solution (0.5 to 1.5 percent spray volume). Use a surfactant with greater than 70 percent active ingredient.

WIPERS

This product may be used through wick or other suitable wiper applicators for control or partial control of grass and broadleaf weeds listed on the label.

For wick applicators, mix 1 gallon of this product with 2 gallons water to make a 33% solution. For wiper systems that can handle thicker solutions, such as force fed systems, a 33 to 100% Roundup solution may be used.

For best results ensure that the herbicide solution is allowed to contact the maximum amount of leaf surface. As weed densities increase, decrease equipment speed to allow sufficient herbicide flow to wet all weed surfaces contacted. Weeds not contacted will be unaffected.


AVOID HERBICIDE CONTACT WITH DESIRABLE VEGETATION. Desirable vegetation contacted by the herbicide solution may be injured or controlled. This includes foliage, fruit, or green stems.

Read "LIMIT OF WARRANTY AND LIABILITY" in the label booklet for Roundup before using this product. Those terms apply to this supplemental labeling and, if those terms are not acceptable, return the product unopened at once.

©MONSANTO COMPANY 1994

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

SUBMISSION REVIEW RECORD				REGISTRATION NUMBER				CYCLE		DATE RECEIVED	
3. 30-D PUBLICATION NECESSARY <input type="checkbox"/> YES <input type="checkbox"/> NO				4. PETITION NO.				5. RECEIVED BY TEAM NO DAY YR		110 2 19 94	
6. METHOD OF SUPPORT <input type="checkbox"/> 2A <input type="checkbox"/> 2B <input type="checkbox"/> 2C				7. PRODUCT MANAGER				8. PROJECTED RETURN NO DAY YR			
9. DATE PULLED 11/15/94		10. DATE PUBLISHED		11. ACTION TYPE Preliminary Use in Hybrid Pylons 302				12. OUTGOING DATE NO DAY YR			
REV. NO.	REVIEW TYPE CODE	REVIEW TYPE	REVIEWER CODE (Initials)	SIGNATURE OF REVIEWER	COMMENT CODE	DATE REVIEW COMPLETED NO DAY YR					
A		REVIEWABILITY TEAM									
B		PRODUCT MANAGER TEAM EFFICACY REVIEW									
C		PRODUCT MANAGER TEAM HUMAN SAFETY REVIEW									
D		PRODUCT MANAGER TEAM ENVIRONMENTAL SAFETY REVIEW									
E		PRODUCT MANAGER TEAM RESUBMISSION REVIEW									
F		PRODUCT MANAGER		VIEW	NAC	1	1	1	5	9	94
G		INTERAGENCY REFERRAL									
H		COST-BENEFIT REVIEW									
I		PUBLIC COMMENTS REVIEW									
J		EEE BRANCH INSECTICIDE EFFICACY									
K		EEE BRANCH HERBICIDE EFFICACY									
L		EEE BRANCH FUNGICIDE EFFICACY									
M		EEE BRANCH RODENTICIDE EFFICACY									
N		EEE BRANCH DISINFECTANT EFFICACY									
O		CHEMISTRY BRANCH RESIDUE CHEMISTRY									
P		EEE BRANCH ENVIRONMENTAL CHEMISTRY									
Q		TOXICOLOGY BRANCH HUMAN SAFETY									
R		EEE BRANCH ENVIRONMENTAL SAFETY									
S											
T											
PRODUCT MANAGER SIGNATURE				TYPE OF RESPONSE						CODE	

(A) 	United States Environmental Protection Agency Office of Pesticide Programs (H7505C) Washington, DC 20460	<input type="checkbox"/> Registration <input checked="" type="checkbox"/> Amendment <input type="checkbox"/> Other	OPP Identifier Number 207654
	Application for Pesticide:		

Section I

1. Company/Product Number 524-445	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Roundup® Herbicide	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section II

<input checked="" type="checkbox"/> Amendment - Explain below	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - explain below.

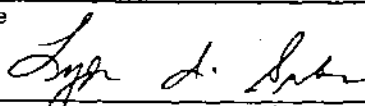
Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submit supplemental label - Preplant use in Hybrid Poplars

Section III

1. Material This Product Will Be Packaged In:			
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2. Type of Container <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
* Certification must be submitted.		If "Yes," Unit Package wgt. _____ No. per container _____	If "Yes," Package wgt. _____ No. per container _____
3. Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container	4. Size(s) of Retail Container	5. Location of Label Directions <input type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label Is Affixed To Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> Paper glued <input type="checkbox"/> _____ <input type="checkbox"/> Stenciled <input type="checkbox"/> _____			

Section IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name Dr. Russell P. Schneider	Title Agricultural Regulation Director	Telephone No. (Include Area Code) (202) 783-2460	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			5. Date Application Received (Stamped) 9/6
2. Signature 	3. Title Registration Manager		
4. Typed Name Lydia A. Suba	5. Date 10/19/94		

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

October 19, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

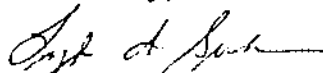
Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Submit Supplemental Label - For preplant use in Hybrid Poplar

Dear Sir:

Attached are five (5) copies of a supplemental label for your review and approval to allow the use of Roundup Herbicide in Populus spp. prior to planting the poplars to control undesirable woody brush and trees through directed sprays and wipers.

Please stamp one copy of this label for our use in state registrations. If you have any questions regarding this submission, please contact Dr. Russell Schneider at our Washington office or me at 314-694-2124.

Sincerely,


Lydia A. Suba
Registration Manager

cc: R.P. Schneider
R.D. Voth
D.M. Fee-White
D.A. Humphrey

NOV 16 1994

Dr. Sheila A Schuette
Monsanto Company
700 14th Street, N.W. Suite #1100
Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Increase Rate For Control of Red Rice)
EPA Registration No. 524-445
Your Letter Dated October 21, 1994

The labeling referred to above submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. Please submit five (5) copies of your final printed labeling before you release the product for shipment. A stamped copy of labeling is enclosed for your records.

Sincerely,

UKW
Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (7505C)

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SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.

ROUNDUP®

Herbicide by Monsanto

EPA Reg. No. 524-445

RED RICE CONTROL IN TEXAS ONLY

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

®Roundup is a registered trademark of Monsanto Company.

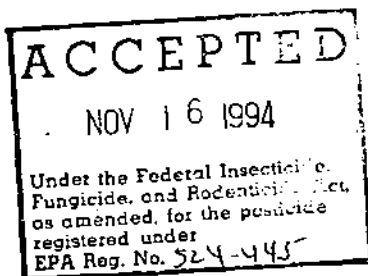
DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup herbicide for essential product performance information.



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RECOMMENDATIONS

This product may be used to control red rice, prior to planting rice. Apply 1 1/2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Use surfactants with a minimum of 70 percent active ingredient. Add 17 pounds of ammonium sulfate per 100 gallons of water.

Flush fields prior to applications to obtain uniform germination and stand of red rice. Make applications when the majority of the red rice plants are in the 2-leaf stage and no more than 4 inches tall. Red rice plants with less than 2 true leaves may only be partially controlled. Do not treat rice fields or levees when the fields contain flood water.

For aerial applications, drift control additives may be used.

Avoid spraying during low humidity conditions, as reduced control may result.

Do not re-flood treated fields for 8 days following application.

Read the "Limit of Warranty and Liability" in the label booklet for Roundup herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

©Monsanto Company 1994

MAP

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

SUBMISSION REVIEW RECORD				1. REGISTRATION NUMBER		CYCLE		3. DATE RECEIVED	
G				5247		445		11/02/94	
3. JOJO PUBLICATION NECESSARY <input type="checkbox"/> YES <input type="checkbox"/> NO				4. PETITION NO.				5. RECEIVED BY TEAM NO DAY YR	
6. METHOD OF SUPPORT <input type="checkbox"/> 2A <input type="checkbox"/> 2B <input type="checkbox"/> 2C				7. PRODUCT MANAGER				8. PROJECTED RETURN NO DAY YR	
9. DATE PULLED 11/15/94		10. DATE PUBLISHED		11. ACTION TYPE <i>increase rate to control Red Rice in Texas 3rd</i>				12. OUTGOING DATE NO DAY YR	
REV. SEC. CODE	REVIEW TYPE	REVIEWER CODE (Initials)	SIGNATURE OF REVIEWER	COM. CODE	DATE REVIEW COMPLETED				
					NO	DAY	YR		
A	REVIEWABILITY TEAM								
B	PRODUCT MANAGER TEAM EFFICACY REVIEW								
C	PRODUCT MANAGER TEAM HUMAN SAFETY REVIEW								
D	PRODUCT MANAGER TEAM ENVIRONMENTAL SAFETY REVIEW								
E	PRODUCT MANAGER TEAM RESUBMISSION REVIEW								
F	PRODUCT MANAGER								
G	INTERAGENCY REFERRAL								
H	COST-BENEFIT REVIEW								
I	PUBLIC COMMENTS REVIEW								
J	SEE BRANCH INSECTICIDE EFFICACY								
K	SEE BRANCH HERBICIDE EFFICACY								
L	SEE BRANCH FUNGICIDE EFFICACY								
M	SEE BRANCH RODENTICIDE EFFICACY								
N	SEE BRANCH DISINFECTANT EFFICACY								
O	CHEMISTRY BRANCH RESIDUE CHEMISTRY								
P	SEE BRANCH ENVIRONMENTAL CHEMISTRY								
Q	TOXICOLOGY BRANCH HUMAN SAFETY								
R	SEE BRANCH ENVIRONMENTAL SAFETY								
S									
T									
PRODUCT MANAGER SIGNATURE			TYPE OF RESPONSE			CODE			



United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☒ Amendment
☐ Other

OPP Identifier Number

219281

Application for Pesticide - Section I

1. Company/Product Number 524-445.	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Roundup® Herbicide	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

<input checked="" type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Supplemental label for Red Rice Control in Texas Only

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Metal	<input checked="" type="checkbox"/> Plastic
If "Yes" Unit Packaging wgt. No. per container		If "Yes" Package wgt. No. per container		<input type="checkbox"/> Glass	<input type="checkbox"/> Paper
Certification must be submitted				<input type="checkbox"/> Other (Specify) _____	
3. Location of Net Contents Information <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container		4. Size(s) Retail Container various		5. Location of Label Directions <input checked="" type="checkbox"/> On label <input checked="" type="checkbox"/> On label accompanying product	
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input checked="" type="checkbox"/> Other vinyl glued			

Section - IV

Contact Point: (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Dr. Russell P. Schneider	Title Agricultural Regulation Director	Telephone No. (Include Area Code) (202) 783-2460
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped)
Signature <i>Sheila A. Schuette</i>	3. Title Manager, Regulatory Affairs	102
Typed Name Sheila A. Schuette, Ph.D.	5. Date Oct 21, 1994	



Certification with Respect to Citation of Data

Applicant's Name and Address

Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, DC 20005

EPA File Symbol/Registration Number

524-445

Product Name

Roundup® Herbicide

Date of Application

October 21, 1994

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of approval of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)
 2. I certify that, for each study cited in support of this application for registration that is an exclusive use study,

☒ I am the original submitter*; or

☐ I have obtained the written permission of the original data submitter to cite that study*
 3. I certify that, for each study cited in support of this application for registration that is not an exclusive use study:
 - a. ☒ I am the original data submitter*; or

☐ I have obtained the written permission of the original data submitter to cite that study*; or
 - b. ☐ I have notified in writing the companies that have submitted data I have cited to support this application and have offered to: (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)

☐ All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)

☐ Those companies that have submitted the studies which I have cited (Selective method*).
- * A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the cite-all method.)

Signature

Sheila A. Schuette

Name and Title

Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs

Date

Oct. 21, 1994

General Offer to Pay: I hereby offer and agree to pay compensation to other persons, with regard to the approval of this application, to the extent required.

Signature

Name and Title

Date

103

Monsanto

A/mb
Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

October 21, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Supplemental Label for Red Rice Control in Texas Only

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of a supplemental label for use of Roundup herbicide to control red rice. The current application rate recommendation is 1 qt/A; however, due to greater weed pressure in Texas, a rate of 1.5 qt/A is needed to control this weed. This higher rate is within the rate range recommended for other weed species on the Roundup label booklet.

Monsanto requests that the Agency approve and stamp the enclosed supplemental label. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed.

If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

104

AUG 11 1994

Dr. Sheila A. Schuette
Monsanto Company
700 14th Street, N. W., Suite 1100
Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Seed Production of Soybeans With Roundup Ready Gene)
EPA Registration No. 524-445
Your Application Dated June 29, 1994

The amendment referred to above, submitted in connection with registration under FIFRA sec. 3(c)(7)(A), is acceptable provided that you:

1. Submit and/or cite all data required for registration/reregistration of your product under FIFRA sec. 3(c)(5) and sec. 4 when the Agency requires all registrants of similar products to submit such data.

2. Submit five (5) copies of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancelation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of labeling is enclosed for your records.

Sincerely,

Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (7505C)

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SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.

ROUNDUP®
Herbicide by Monsanto

EPA Reg. No. 524-445

ACCEPTED

AUG 11 1994

Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under
EPA Reg. No. 524-445

HOODED SPRAYERS IN SUGARCANE

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

®Roundup is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup herbicide for essential product performance information.

RECOMMENDATIONS

This product may be used through hooded sprayers for weed control between the rows of sugarcane. Sugarcane must be at least 3 feet tall.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of the label booklet for Roundup herbicide.

A hooded sprayer is a type of shielded applicator. The spray pattern

is completely enclosed on the top and all 4 sides by a hood, thereby shielding desirable vegetation from the spray solution.

Hooded sprayers which apply the herbicide solution as a spray band should be calibrated on a broadcast equivalent rate and volume basis. Use the following equation to convert from a broadcast rate per acre to a band rate per acre.

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Herbicide Broadcast RATE per acre} = \text{Herbicide Band RATE per acre}$$

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast VOLUME of solution per acre} = \text{Band VOLUME of solution per acre}$$

Use nozzles that provide uniform coverage within the treated area. The herbicide solution should contact the entire weed.

Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation.

Do not allow treated weeds to come into contact with desirable vegetation.

Droplets, mist, foam, or splatter of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Minimize the potential for spray particles to escape from under the hood by operating the sprayer at appropriate ground speeds, nozzle pressures, and wind speeds. Operation on rough or sloping ground may result in spray particles escaping from the hood.

Contact of this product in any manner to any vegetation to which treatment is not intended may cause damage. Such damage shall be the sole responsibility of the applicator.

Read the "Limit of Warranty and Liability" in the label booklet for Roundup herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

SUBMISSION REVIEW RECORD				1. REGISTRATION NUMBER				CYCLE		7. DATE RECEIVED	
3. 1000 PUBLICATION NECESSARY <input type="checkbox"/> YES <input type="checkbox"/> NO				4. PETITION NO.				5. RECEIVED PM TEAM			
6. METHOD OF SUPPORT <input type="checkbox"/> 2A <input type="checkbox"/> 2B <input type="checkbox"/> 2C				7. PRODUCT MANAGER				8. PROJECTED RETURN			
9. DATE PULLED		10. DATE PUBLISHED		11. ACTION TYPE				12. OUTGOING DATE			
8/9/94				Seed production of soybeans with Roundup Ready Here							
REV. SEQ.	REV. TYPE	REVIEW TYPE	REVIEWER CODE (Initials)	SIGNATURE OF REVIEWER				COM. MENT CODE	DATE REVIEW COMPLETED		
	A	REVIEWABILITY TEAM									
	B	PRODUCT MANAGER TEAM EFFICACY REVIEW									
	C	PRODUCT MANAGER TEAM HUMAN SAFETY REVIEW									
	D	PRODUCT MANAGER TEAM ENVIRONMENTAL SAFETY REVIEW									
	E	PRODUCT MANAGER TEAM RESUBMISSION REVIEW									
	F	PRODUCT MANAGER		VKW				NAC	0/8	0/9	9/4
	G	INTERAGENCY REFERRAL		Spoke with Carl Grable							
	H	COST-BENEFIT REVIEW		on this amendment							
	I	PUBLIC COMMENTS REVIEW		He agreed that we							
	J	EEE BRANCH INSECTICIDE EFFICACY		should go with it							
	K	EEE BRANCH HERBICIDE EFFICACY									
	L	EEE BRANCH FUNGICIDE EFFICACY									
	M	EEE BRANCH ACCIDENTICIDE EFFICACY									
	N	EEE BRANCH DISINFECTANT EFFICACY									
	O	CHEMISTRY BRANCH RESIDUE CHEMISTRY									
	P	EEE BRANCH ENVIRONMENTAL CHEMISTRY									
	Q	TOXICOLOGY BRANCH HUMAN SAFETY									
	R	EEE BRANCH ENVIRONMENTAL SAFETY									
	S										
	T										
PRODUCT MANAGER SIGNATURE				TYPE OF RESPONSE				CODE			

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

June 29, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Supplemental Label for Seed Production of
Roundup Ready™ Soybeans

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of a supplemental label for Roundup herbicide, which allows the use of Roundup herbicide in the production of Roundup Ready Soybean seed. This use is necessary as a quality control measure to ensure that the Roundup Ready soybean seed produced by seed companies will be free of any non-glyphosate-tolerant soybean seeds. This label will only be distributed to a limited number of seed companies who are working closely with Monsanto on the development of this new technology. Dr. Russ Schneider of Monsanto recently discussed the need for this proposed label with Mr. Carl Grable of EPA.

The proposed label is supported by the data contained in MRIDs 43260401-3, which were submitted to the Agency on May 27, 1994. These data demonstrate that at an application rate of one quart per acre, which is the maximum rate allowed in this proposed supplemental label, the residue levels of glyphosate in all soybean raw agricultural commodities (RAC) and processed fractions will be within existing tolerances. The maximum glyphosate residue level found in each RAC and the corresponding tolerances are listed below; all residues are within existing tolerances.

Commodity	Maximum Glyphosate Residue @ 1 qt/a Application Rate (ppm)	Tolerance (ppm)
Soybean Grain	2.3	20
Soybean Forage	9.2	15
Soybean Hay	8.5	200

Although the soybean seed produced will be within existing tolerances for glyphosate, the seed will remain under the control of the seed producer and will not be sold until the commercial use label, which was submitted on May 27, 1994, is approved by the Agency. No forage will be collected during seed production, since the plants must be grown to maturity in order to harvest the seed. After harvest of the seed, the remaining plant material will be plowed under. In the event that a soybean production field is damaged (e.g., by hail) and cannot be grown to maturity, any remaining plants will be destroyed.

The production of Roundup Ready Soybean seeds represents a significant financial investment by the seed companies. The enclosed supplemental label is needed to protect that investment by ensuring that any non-tolerant volunteers are destroyed prior to seed formation. This financial investment also ensures that the Roundup Ready Soybean seeds will not enter the market before the commercial use label is approved -- the seed will only be sold when a premium can be obtained for the technology.

In summary, this label is needed by producers of Roundup Ready™ Soybean seed as a quality control tool, the seed will not be sold until the commercial use is approved, and, in the rare case that any of the seed or other plant material inadvertently enters channels of trade prematurely, glyphosate residues will be within existing tolerances. Monsanto therefore requests that the Agency approve and stamp the enclosed supplemental label. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed. If you have any questions regarding this submission, please contact Russ Schneider or me.


Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider
B.H. Wells

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(A) 	United States Environmental Protection Agency Office of Pesticide Programs (H7505C) Washington, DC 20460	<input type="checkbox"/> Registration <input checked="" type="checkbox"/> Amendment <input type="checkbox"/> Other	OPP Identifier Number 207678
	Application for Pesticide:		

Section I

1. Company/Product Number 524-445	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Roundup® Herbicide	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section II

<input checked="" type="checkbox"/> Amendment - Explain below	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - explain below.

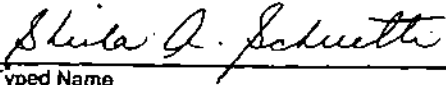
Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Supplemental label for seed production of Roundup Ready™ Soybeans.

Section III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Metal	<input checked="" type="checkbox"/> Plastic
				<input type="checkbox"/> Glass	<input type="checkbox"/> Paper
				<input type="checkbox"/> Other (Specify) _____	
* Certification must be submitted.					
3. Location of Net Contents Information <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container	4. Size(s) of Retail Container Various	5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input checked="" type="checkbox"/> On Labeling accompanying product			
6. Manner In Which Label Is Affixed To Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled <input checked="" type="checkbox"/> Other (vinyl glued)					

Section IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name Dr. Russell P. Schneider	Title Agricultural Regulation Director	Telephone No. (Include Area Code) (202) 783-2460	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped)	
2. Signature 	3. Title Manager, Regulatory Affairs		
4. Typed Name Sheila A. Schuette, Ph.D.	5. Date June 29, 1994		



United States Environmental Protection Agency
Washington, DC 20460

Certification with Respect to Citation of Data

Form Approved
OMB No. 2070-0060
Approval Expires 11-30-93

Applicants Name and Address

Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, DC 20005

EPA File Symbol/Registration Number

524-445

Product Name

Roundup® Herbicide

Date of Application

June 29, 1994

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of approval of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)
2. I certify that, for each study cited in support of this application for registration that is an exclusive use study,
 - ☒ I am the original submitter*; or
 - ☐ I have obtained the written permission of the original data submitter to cite that study*
3. I certify that, for each study cited in support of this application for registration that is not an exclusive use study:
 - a. ☒ I am the original data submitter*; or
 - ☐ I have obtained the written permission of the original data submitter to cite that study*; or
 - b. ☐ I have notified in writing the companies that have submitted data I have cited to support this application and have offered to: (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)
 - ☐ All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)
 - ☐ Those companies that have submitted the studies which I have cited (Selective method*).

* A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the cite-all method.)

Signature 	Name and Title Sheila A. Schuette, Ph.D. Manager, Regulatory Affairs	Date June 29, 1994
---------------	----------------------------------------------------------------------------	-----------------------

General Offer to Pay: I hereby offer and agree to pay compensation to other persons, with regard to the approval of this application, to the extent required.

Signature	Name and Title	Date 112
-----------	----------------	-------------

AUG 11 1994

Keep

524-445

Dr. Russell P. Schneider
Monsanto Company
700 14th Street, N.W. Suite 1100
Washington, D.C. 20005

Dear Dr. Schneider:

Subject: Glyphosate Registrants
Your Letters Dated March 29, and August 3, 1994

This letter is in response to your letters dated March 29 and August 3, 1994 inquiring as to other registrants of glyphosate. A review of our records indicate the none of the registrants listed in the subject letters hold U.S. registrations for glyphosate.

Sincerely,

Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (7505C)

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Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

March 29, 1994

Office of Pesticide Programs - H7505C
Document Processing Desk
U.S. Environmental Protection Agency
Room 266A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, VA 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: Glyphosate registrants

Dear Mr. Taylor,

Monsanto continues to be informed by regulatory officials outside the United States of documents being submitted to them indicating the US registration of glyphosate by companies other than Monsanto. Would you please check the EPA records and provide me a letter indicating whether the following companies hold US registrations for glyphosate?

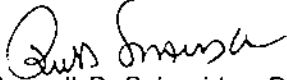
Cheminova (Denmark)
Comlets Chemical Industrial Company Ltd (Taiwan)
Crystal Chemical Inter-America (USA)
Forward International Ltd. (Taiwanese company)
Helm AG (Germany)
Makteshim-Agan (Israel)
Marman USA, Inc
Micro-Flo Company (USA)
Pillar International (Taiwan)
Rotam Group (Hong Kong)
Shin Dar Agricultural Chemical Company, Ltd (Taiwan)
Sinochem (Taiwan)

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Your attention to this request is very important as we approach our Regulatory contacts outside the US. I will contact you in a few days to check on the timeframe required to fill this request.

Thanks for your help.

Sincerely,

A handwritten signature in dark ink, appearing to read "Russ Schneider", written over the printed name.

Russell P. Schneider, Ph.D.
Agricultural Regulation Director

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

August 3, 1994

Office of Pesticide Programs - H7505C
Document Processing Desk
U.S. Environmental Protection Agency
Room 266A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, VA 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: Glyphosate registration claimed by Marman

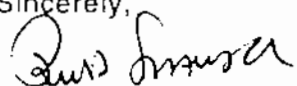
Dear Mr. Taylor,

Monsanto continues to be informed by regulatory officials outside the United States of documents being submitted to them indicating the US registration of glyphosate by Marman USA, Inc. This company claims the product "Atila" was registered by the United States Environmental Protection Agency under EPA Reg. No. 524-308-AA-4873. Monsanto recognizes the 524 to be the Monsanto Company number and 308 corresponds to the EPA Reg. No. for Roundup Export Herbicide. In the past, the California Department of Pesticide Regulation used the AA designation for their own internal purposes of tracking product registrations. The 4873 number has no meaning to Monsanto.

Would you please check your records to verify the "supposed" registration number and advise Monsanto of your findings. Your immediate attention to this issue would be appreciated as Marman USA, Inc. is making significant sales overtones pertaining to a glyphosate product and we would like to clarify the issue. Your attention to this request is very important as we approach our Regulatory contacts outside the US.

Thanks for your help.

Sincerely,

A handwritten signature in cursive script, appearing to read "Russ Schneider".

Russell P. Schneider, Ph.D.
Agricultural Regulation Director

AUG 11 1994

Dr. Sheila A. Schuette
Monsanto Company
700 14th Street, N. W., Suite 1100
Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Use With Hooded Sprayers In Sugarcane)
EPA Registration No. 524-445
Your Application Dated November 8, 1993

The amendment referred to above, submitted in connection with registration under FIFRA sec. 3(c)(7)(A), is acceptable provided that you:

1. Submit and/or cite all data required for registration/reregistration of your product under FIFRA sec. 3(c)(5) and sec. 4 when the Agency requires all registrants of similar products to submit such data.

2. Submit five (5) copies of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancelation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Sincerely,

Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (H7505C)

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SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup, container labels and this supplement.

ACCEPTED

AUG 11 1994

Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under
EPA Reg. No. 524-445

ROUNDUP®
Herbicide by Monsanto

EPA Reg. No. 524-445

USE ONLY FOR SEED PRODUCTION OF SOYBEANS WITH THE
ROUNDUP READY™ GENE

Keep out of reach of children.
WARNING! AVISO!

In case of an emergency involving this product, Call
Collect, day or night, (314) 694-4000.

Roundup® is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATIONS INSTRUCTIONS" sections of the label booklet for Roundup for essential product performance information.

NOTE: THIS PRODUCT MAY BE USED FOR CONTROL OF NON-GLYPHOSATE TOLERANT SOYBEANS IN PRODUCTION FIELDS OF SOYBEANS CONTAINING THE ROUNDUP READY™ GENE. SEVERE INJURY OR DEATH WILL RESULT IF SOYBEAN VARIETIES WHICH DO NOT CONTAIN THE ROUNDUP READY GENE ARE SPRAYED WITH THIS PRODUCT. AVOID CONTACT OF THE SPRAY WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS AND TREES, OTHER THAN SOYBEANS WITH THE ROUNDUP READY GENE, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

USE RECOMMENDATIONS:

When applied as directed under the conditions described, this product will control non-glyphosate tolerant soybeans in seed.

...

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production fields of soybeans containing the Roundup Ready gene. This product may be applied using ground spray equipment only. Apply 1 quart of this product plus 0.5 to 1.0% nonionic surfactant by total spray volume in 5 to 20 gallons of spray solution per acre as a broadcast spray

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT.

Application Timing - This product can be applied to Roundup Ready Soybeans from the cracking stage through the flowering stage.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 15 1994

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: ID# 000524-00445. Glyphosate, isopropylamine salt
(Roundup® Herbicide).
Letter of 11/8/93: Proposed Supplemental Label -
Add Use with Hooded Sprayers in Sugarcane.

DP#: D197609 CBTS#: 12972 Chem#: 103601

FROM: Maxie Jo Nelson, Ph.D., Chemist
Chemistry Branch I - Tolerance Support
Health Effects Division (7509C)

mjn
4-15-94

THRU: Robert S. Quick, Section Head
Chemistry Branch I - Tolerance Support
Health Effects Division (7509C)

RSQ
by mjn

TO: V. Walters/R. Taylor, PM Team 25
Fungicide-Herbicide Branch
Registration Division (7505C)

BACKGROUND

By letter dated 11/8/93, Monsanto Co. (registrant) has submitted for Agency review and approval a supplemental label for Roundup® Herbicide (EPA Reg. No. 524-445) for a hooded sprayers use in sugarcane.

Hooded sprayers are a relatively recent innovation in shielded sprayer technology. Unlike traditional shielded sprayers, hooded sprayers are completely enclosed on all four sides and the top. They are mounted on the tractor so the bottom of the hood is in very close contact with the ground, and herbicide applications are made to the ground between the crop rows. The spray nozzles for applying the herbicide are located on the inside of the hood, so that only the weeds in between the crop rows are contacted with the spray; the crop itself is shielded from the herbicide.



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contains at least 50% recycled fiber

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Monsanto believes its supplemental label request is supported by the glyphosate/sugarcane field trial residue data contained in EPA MRID# 00108140 (PP#6G1826).

DISCUSSION

Roundup® is a water-soluble liquid formulation containing 41% glyphosate in the form of its isopropylamine salt as active ingredient (4 lbs ai/gal; 3 lbs ae/gal).

Roundup® is registered for control of annual and perennial weeds in many crops. The label currently allows product use in sugarcane fields by broadcast application prior to planting and/or by spot treatments postemergence.

Monsanto's supplemental labeling is for postemergence treatment using hooded sprayers. Treatment would be directed to the weeds between the rows of sugarcane, just prior to close-in (layby). This, in effect, imposes a several month PHI.

The rate of application will depend upon the species of annual or perennial weeds to be controlled. Recommended label rates range between 8-160 fl ozs (0.25-5 qts) of product/A/application. (A 0.5-2.0% solution for spot treatments.) The combined total of all uses may not exceed 10.6 qts (10.6 lbs ai; 7.95 lbs ae) of product/A/year. Do not feed or graze treated sugarcane forage following application.

Report MRID# 00108140 (glyphosate/sugarcane) contains field trial residue data for both preplant and spot treatment uses. (1) A preplant soil application at 10 lbs ae/A resulted in NDR (<0.05 ppm each) of glyphosate and its metabolite aminomethylphosphonic acid (AMPA) in sugarcane sampled 6 and 12 months after planting; (2) A postemergent, soil-directed, broadcast application (at 6 lbs ae/A) between-the-rows of 5-6 month old cane, just prior to close-in, resulted in <0.05-0.09 ppm glyphosate and <0.05 ppm AMPA in cane sampled 5½-6 months later; and, (3) Spot treatments (at 5 and 10 lbs ae/A) to the ground around the field edges of sugarcane resulted in NDR in cane harvested 6 weeks later.

Based on those data, EPA established a tolerance (40 CFR 180.364) of 0.1 ppm for combined residues of glyphosate and AMPA in/on sugarcane. That tolerance was later raised to 2 ppm based on use of glyphosate as a plant growth regulator (PP#8E2122; Polado L, EPA Reg. No. 524-350) close to harvest.

CONCLUSIONS


1. Residues of <0.1 ppm glyphosate and <0.05 ppm AMPA would be expected to result from the requested hooded sprayers use of Roundup® Herbicide (EPA Reg. No. 524-445) in sugarcane.
2. Amending the registered Roundup® Herbicide label to permit the requested hooded sprayers use in sugarcane prior to layby will not affect the adequacy of the established glyphosate tolerances on sugarcane (2 ppm) and sugarcane molasses (30 ppm).
3. Since no increase in the tolerance level is involved, no new DRES run should be needed.

RECOMMENDATION

CBTS has no objection to the Roundup® Herbicide (EPA Reg. No. 524-445) label being amended to add the proposed postemergence use by hooded sprayers between rows in sugarcane prior to layby.

cc: M. Nelson, RF, Circ, Glyphosate Amended Registration File,
Glyphosate SF.

7509C:CBTS:MJN:mjn:CM#2:Rm804U:305-7585:GLYP445.sgr:4/14/94.
RDI:SecHd:RSQuick:4/14/94:BrChf:DEdwards:4/14/94.

(A) 	United States Environmental Protection Agency Office of Pesticide Programs (H7505C) Washington, DC 20460	<input type="checkbox"/> Registration <input checked="" type="checkbox"/> Amendment <input type="checkbox"/> Other	OPP Identifier Number
	Application for Pesticide:		207711

Section I

1. Company/Product Number 524-445	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Roundup® Herbicide	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, D.C. 20005 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section II

<input checked="" type="checkbox"/> Amendment - Explain below	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application
<input type="checkbox"/> Notification - Explain below	<input type="checkbox"/> Other - explain below


Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Supplemental label for use with hooded sprayers in sugarcane?

Section III

1. Material This Product Will Be Packaged In:			
Child-Resistant Packaging: <input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No	Unit Packaging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2. Type of Container: <input type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
* Certification must be submitted.		If "Yes," Unit Package wgt. _____ No. per container _____	If "Yes," Package wgt. _____ No. per container _____
3. Location of Net Contents Information: <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container	4. Size(s) of Retail Container: various	5. Location of Label Directions: <input checked="" type="checkbox"/> On Labels <input checked="" type="checkbox"/> On Labeling accompanying product	
6. Manner In Which Label Is Affixed To Product: <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled <input checked="" type="checkbox"/> Other (Specify) Vinyl glued			

Section IV

1. Contact Point (Complete items directly below for identification of individual to be contacted; if necessary, to process this application.)			
Name Dr. Russell P. Schneider	Title Agricultural Regulation Director	Telephone No. (Include Area Code) (202) 783-2460	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped)	
2. Signature 	3. Title Manager, Regulatory Affairs		
4. Typed Name Sheila A. Schuette, Ph.D.	5. Date Nov 8, 1993	124	

PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];
2. Confidential Statement of Formula (EPA Form 8570-4);
3. Formulator's Exemption Statement (EPA Form 8570-27);
4. Five copies of draft labeling;
5. Three copies of any data submitted;
6. Authorization letter where applicable;
7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission.

Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

1. **Company/Product Number** - Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
2. **EPA Product Manager** - If known, fill in the name and PM number of the EPA Product Manager.
3. **Proposed Classification** - Specify the proposed classification of this product.
4. **Product Name** - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
5. **Name and Address of Applicant** - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
6. **Expedited Review** - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. **Subject of submission** - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. **Type of Packaging** - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.
2. **Type of Retail Container** - Indicate type of container in which product will be marketed.
3. **Location of Net Contents** - Specify the net contents of all retail containers for your product.
4. **Size(s) of Retail Container** - Specify the net contents of all retail containers for your product.
5. **Location of Use Directions** - Indicate the location of the use directions for your product.
6. **Manner in which label is affixed to product** - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "me-too," reregistration, etc.

- 1-5. Self-explanatory.
6. EPA Use Only.

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AUG 11 1994

Dr. Sheila A. Schuette
Monsanto Company
700 14th Street, N.W. Suite 1100
Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Removal of 30-Day Crop Rotation Restriction)
EPA Registration No. 524-445
Your Letter Dated August 16, 1993

The scientific review and evaluation of the subject request have been completed. The following are comments and/or conclusions. A copy of the review is enclosed for your information.

1. The available data support a 30-day plant back interval for all crops for which the use of glyphosate is not registered.
2. No data for 0 day plant-back intervals have been submitted.
3. The possibility thus exists for illegal glyphosate residues in spices or crops not included in the crop groupings if they were to be planted 0 days after treatment.
4. In order for the Agency to remove the 30 day restriction you must demonstrate that significant residues would not be present in rotational crops planted 0 days after treatment.

Sincerely,

JKW
Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (7505C)



Certification with Respect to Citation of Data

Applicants Name and Address

Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, D.C. 20005

EPA File Symbol/Registration Number

524-445

Product Name

Roundup® Herbicide

Date of Application

November 8, 1993

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of approval of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)
2. I certify that, for each study cited in support of this application for registration that is an exclusive use study,
☒ I am the original submitter*; or
☐ I have obtained the written permission of the original data submitter to cite that study*
3. I certify that, for each study cited in support of this application for registration that is not an exclusive use study:
 - a. ☒ I am the original data submitter*; or
☐ I have obtained the written permission of the original data submitter to cite that study*; or
 - b. ☐ I have notified in writing the companies that have submitted data I have cited to support this application and have offered to: (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)
☐ All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)
☐ Those companies that have submitted the studies which I have cited (Selective method*).

* A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the cite-all method.)

Signature

Name and Title

Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs

Date

Nov 8, 1993

General Offer to Pay: I hereby offer and agree to pay compensation to other persons, with regard to the approval of this application, to the extent required.

Signature

Name and Title

Date

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MAY 12 1994

MEMORANDUM

SUBJECT: ID#000524-00445. Label Amendment for Roundup
(Glyphosate) MRID# none. Barcode D200041. Case 002698.
CBTS# 13309.

FROM: G.F. Kramer Ph.D., Chemist *[Signature]*
Tolerance Petition Section III
Chemistry Branch I, Tolerance Support
Health Effects Division (7509C)

THRU: P.V. Errico, Section Head *P.V. Errico*
Chemistry Branch I, Tolerance Support
Health Effects Division (7509C)

TO: Robert Taylor, Product Manager
Vickie Walters, Team 25 Reviewer
Registration Division (7505C)

Monsanto has submitted a proposed label amendment for Roundup (glyphosate). The registrant wishes to remove the crop rotation restriction which imposes a 30 day minimum plant-back interval for crops on which the use of glyphosate is not registered. The registrant claims that such a restriction is unnecessary as tolerances are established for every crop group except spices. Tolerances on these groups as defined in 40 CFR § 180.34 are not currently established, but the tolerance reassessment in the Residue Chemistry Chapter for the glyphosate RED does recommend establishing tolerances for all groups except spices.

CONCLUSIONS/RECOMMENDATIONS

The existing data support a 30 day plant-back interval for all crops on which the use of glyphosate is not registered. In order to change this plant-back interval to 0 days (i.e., removing the restriction), the registrant must demonstrate that significant



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glyphosate residues would not be present in rotational crops planted 0 days after treatment. CBTS thus recommends against the proposed label amendment.

DETAILED CONSIDERATIONS

The current crop rotation restriction on the Roundup label reads: "Do not plant subsequent crops other than those on the label for 30 days following application." The registrant proposes to remove these restrictions, thus allowing a 0 day plant-back interval for rotational crops. Minimum plant-back intervals are determined from the plant-back interval in the rotational crop studies at which there are no significant residues detected in any rotational crop. In the glyphosate confined crop rotation studies (MRID#s 415432-01, -02), residues of glyphosate at a level of >0.01 ppm in crops planted back 30 days after treatment were observed only in barley grain (Memo, A. Abramovitch 10/14/92). However, since this residue (0.018 ppm) was well below the LOQ of the enforcement method (0.05 ppm), it is not considered to be significant. These data thus support a 30 day plant-back interval for all crops for which the use of glyphosate is not registered. No data for 0 day plant-back intervals has been submitted. The possibility thus exists for illegal glyphosate residues in spices or crops not included in the crop groupings if they were to be planted 0 days after treatment. In order to change this plant-back interval to 0 days (i.e., removing the restriction), the registrant must demonstrate that significant glyphosate residues would not be present in rotational crops planted 0 days after treatment. CBTS thus recommends against the proposed label amendment.

cc: Kramer, circ.; R.F., S.F.

RDI: P.V. Errico (5/9/94), R.A. Loranger (5/11/94), E.C. Saito (5/12/94)

G.F. Kramer:804V:CM#2:(703)305-5079:7509C

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Roundup

Herbicide by Monsanto

Complete Directions for Use

EPA Reg. No. 524-445

AVOID CONTACT WITH FOLIAGE, STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

®Roundup is a registered trademark of Monsanto Company.

1994-1

898.07-000.45/53

Read each of these sections of this label for essential product performance information.

USE THESE CONVENIENT SECTION MARKERS.

TREE AND VINE CROPS

MINIMUM TILLAGE

CROPPING SYSTEMS

NONCROP USES

WEEDS CONTROLLED

MIXING, ADDITIVES AND
APPLICATION INSTRUCTIONS

GENERAL INFORMATION

Roundup

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GENERAL INFORMATION

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Read the entire label before using this product.

Use only according to label instructions.

Read "LIMIT OF WARRANTY AND LIABILITY" before buying or using. If terms are not acceptable, return at once unopened.

REFORMULATION IS PROHIBITED. SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

LIMIT OF WARRANTY AND LIABILITY

This Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

Buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

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PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Keep out of reach of children.

WARNING! AVISO!

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY.

HARMFUL IF SWALLOWED OR INHALED.

Do not get in eyes or on clothing.

Avoid breathing vapor or spray mist.

FIRST AID: IF IN EYES, immediately hold eyelids open and flush with plenty of water for at least 15 minutes. Get medical attention.

IF INHALED, remove individual to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

IF SWALLOWED, this product will cause gastrointestinal tract irritation. Immediately dilute by swallowing water or milk. Get medical attention. **NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.**

Personal Protective Equipment

Applicators and other handlers must wear: long-sleeved shirt and long pants, shoes plus socks, and protective eyewear. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations:**Users should:**

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

In case of an emergency involving this product,
Call Collect, day or night, (314) 694-1000.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

ACTIVE INGREDIENT:

*Glyphosate, It-(phosphonomethyl)glycine, in the form of its isopropylamine salt.....41.0%

INERT INGREDIENTS:.....59.0%

100.0%

*Contains 480 grams per litre or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per litre or 3 pounds per U.S. gallon of the acid, glyphosate

This product is protected by U.S. Patent No. 4,405,531. Other patents pending. No license granted under any non-U.S. patent(s).

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: coveralls, waterproof gloves, shoes plus socks, and protective eyewear.

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Keep people and pets off treated areas until spray solution has dried.

For more product information, call toll-free 1-800-332-3111.

Storage and Disposal

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

See container label for STORAGE AND DISPOSAL instructions.

GENERAL INFORMATION

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT EXCEPT UNDER CONDITIONS AS SPECIFIED WITHIN THIS LABEL.

This product, a water soluble liquid, mixes readily with water to be applied as a foliar spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field-type sprayers after dilution and thorough mixing with water in accordance with label instructions.

This product moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds may not occur for 7 days or more. Extremely cold or cloudy weather following treatment may slow activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above-ground growth and deterioration of underground plant parts.

Unless otherwise specified on this label, delay application until vegetation has emerged and reached the stages described for control of such vegetation under the "WEEDS CONTROLLED" section of this label. Unemerged plants arising from unattached underground rhizomes or root stocks of perennials will not be affected by the herbicide and will continue to grow. For this reason, best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per acre within the recommended range when (1) weed growth is heavy or dense, or (2) weeds are growing in an undisturbed (noncultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed, or cut and have not been allowed to regrow to the recommended stage for treatment.

Rainfall or irrigation occurring within 6 hours after application may reduce effectiveness. Heavy rainfall or irrigation within 2 hours after application may wash the chemical off the foliage and a repeat treatment may be required.

This product does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly recommended in this labeling. Mixing this product with herbicides or other materials not recommended on this label may result in reduced performance.

For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

DOMESTIC ANIMALS: This product is considered to be relatively nontoxic to dogs and other domestic animals; however, ingestion of this product or large amounts of freshly sprayed vegetation may result in temporary gastrointestinal irritation (vomiting, diarrhea, colic, etc.). If such symptoms are observed, provide the animal with plenty of fluids to prevent dehydration. Call a veterinarian if symptoms persist for more than 24 hours.

ATTENTION

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of injury occurring from the use of this product is greatest when winds are gusty or in excess of 5 miles per hour or when other conditions, including lesser wind velocities, will allow spray drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.

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NOTE: Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES. DO NOT APPLY WHEN WIND OR OTHER CONDITIONS FAVOR DRIFT. HAND-GUN APPLICATIONS SHOULD BE PROPERLY DIRECTED TO AVOID SPRAYING DESIRABLE PLANTS. NOTE: REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

MIXING

This product mixes readily with water. Mix spray solutions of this product as follows: Fill the mixing or spray tank with the required amount of water. Add the recommended amount of this product (see the "DIRECTIONS FOR USE" and "WEEDS CONTROLLED" sections of this label) near the end of the filling process and mix well. Remove hose from tank immediately after filling to avoid siphoning back into the carrier source. During mixing and application, foaming of the spray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, terminate by-pass and return lines at the bottom of the tank and, if needed, use an approved anti-foam or defoaming agent.

TANK MIXTURES

Always predetermine the compatibility of labeled tank mixtures of this product with water carrier by mixing small proportional quantities in advance.

Mix labeled tank mixtures of this product with water as follows:

1. Place a 20 to 35 mesh screen or wetting basket over filling port.
2. Through the screen, fill the spray tank one-half full with water and start agitation.
3. If a wettable powder is used, make a slurry with the water carrier, and add it SLOWLY through the screen into the tank. Continue agitation.

4. If a flowable formulation is used, premix one part flowable with one part water. Add diluted mixture SLOWLY through the screen into the tank. Continue agitation.
5. If an emulsifiable concentrate formulation is used, premix one part emulsifiable concentrate with two parts water. Add diluted mixture slowly through the screen into the tank. Continue agitation.
6. Continue filling the spray tank with water and add the required amount of this product near the end of the filling process.
7. Where nonionic surfactant is recommended, add this to the spray tank before completing the filling process.
8. Add individual formulations to the spray tank as follows: wettable powder, flowable, emulsifiable concentrate, drift control additive, water soluble liquid followed by surfactant.

Maintain good agitation at all times until the contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed.

Keep by-pass line on or near bottom of tank to minimize foaming. Screen size in nozzle or line spacers should be no finer than 50 mesh. Carefully select proper nozzle to avoid spraying a fine mist. For best results with conventional ground application equipment, use flat fan nozzles.

Clean sprayer and parts immediately after using this product by thoroughly flushing with water.

ADDITIVES

SURFACTANTS

Nonionic surfactants which are labeled for use with herbicides may be used. Do not reduce rates of this product when adding surfactant. When adding additional surfactant, use 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration (4 quarts per 100 gallons of spray solution) for those surfactants containing less than 70 percent active ingredient. Read and carefully observe surfactant cautionary statements and other information appearing on the surfactant label.

AMMONIUM SULFATE

The addition of 1 to 2 percent dry ammonium sulfate by weight or 6.5 to 17 pounds per 100 gallons of water may increase the performance of this product, and this product plus 2,4-D, Banvel™ or residual herbicide tank mixtures on annual and perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Low-quality ammonium sulfate may contain material that will not readily dissolve, which could result in nozzle tip plugging. To determine quality, perform a jar test by adding 1/3 cup of ammonium sulfate to 1 gallon of water and agitate for 1 minute. If undissolved sediment is observed, predissolve the ammonium sulfate in water and filter prior to addition to the spray tank. If ammonium sulfate is added directly to the spray tank, add slowly with agitation. Adding too quickly may clog outlet line. Ensure that ammonium sulfate is completely dissolved in the spray tank before adding herbicides or surfactant. Thoroughly rinse the spray system with clean water after use to reduce corrosion.

NOTE: The use of ammonium sulfate as an additive does not preclude the need for additional surfactant. Do not use herbicide rates lower than recommended in this label.

COLORANTS OR DYES

Agriculturally-approved colorants or marking dyes may be added to this product. Colorants or dyes used in spray solutions of this product may reduce performance, especially at lower rates or dilutions. Use colorants or dyes according to the manufacturer's recommendations.

APPLICATION EQUIPMENT AND TECHNIQUES

Do not apply this product through any type of irrigation system.

This product may be applied with the following application equipment:

Aerial—Fixed Wing and Helicopter

Broadcast Spray

Controlled Droplet Applicator (CDA)—Hand-held or boom-mounted applicators which produce a spray consisting of a narrow range of droplet sizes.

Hand-Held and High-Volume Spray Equipment—Knapsack and backpack sprayers, pump-up pressure sprayers, handguns, handwands, mistblowers*, lances and other hand-held and motorized spray equipment used to direct the spray onto weed foliage.

* This product is not registered in California or Arizona for use in mistblowers.

Selective equipment—Recirculating sprayers, shielded sprayers and wiper applicators. See the appropriate part of this section for specific instructions and rates of application.

AERIAL EQUIPMENT

Use the recommended rates of this herbicide in 3 to 15 gallons of water per acre unless otherwise specified on this label. See the "WEEDS CONTROLLED" section of this label for specific rates. Unless otherwise specified, do not exceed 1 quart per acre. Aerial applications of this product may be made in annual cropping conventional tillage systems, fallow and reduced tillage systems, and preharvest. Refer to the individual use area sections of this label for recommended volumes and application rates. **FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.**

Avoid direct application to any body of water.

AVOID DRIFT—DO NOT APPLY DURING INVERSION CONDITIONS, WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITION WHICH FAVORS DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Ensure uniform application—To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint), which meets aerospace specification MIL-C-38413, may prevent corrosion.

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This product plus DustTM, BanvelTM or 2,4-D tank mixtures may not be applied by air in California.

BROADCAST EQUIPMENT

For control of annual or perennial weeds listed on this label using broadcast equipment—Use the recommended rates of this product in 3 to 40 gallons of water per acre as a broadcast spray unless otherwise specified on this label. See the "WEEDS CONTROLLED" section of this label for specific rates. As density of weeds increases, spray volume should be increased within the recommended range to ensure complete coverage. Carefully select proper nozzle to avoid spraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

CONTROLLED DROPLET APPLICATION (CDA)

The rate of this product applied per acre by vehicle-mounted CDA equipment must not be less than the amount recommended in this label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 3 to 15 gallons of water per acre.

For the control of labeled annual weeds with hand-held CDA units, apply a 20 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 1.5 MPH (1 quart per acre). For the control of labeled perennial weeds, apply a 20 to 40 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 0.75 MPH (2 to 4 quarts per acre).

Controlled droplet application equipment produces a spray pattern which is not easily visible. Extreme care must be exercised to avoid spray or drift contacting the foliage or any other green tissue of desirable vegetation, as damage or destruction may result.

HAND-HELD and HIGH-VOLUME EQUIPMENT

Use coarse sprays only.

Mix this product in clean water and apply to foliage of vegetation to be controlled. For applications made on a spray-to-wet basis, spray coverage should be uniform and complete. Do not spray to the point of runoff.

For control of annual weeds listed on this label, apply a 0.5 percent solution of this product plus nonionic surfactant to weeds less than 6 inches in height or runner length. Apply prior to seedhead formation in grass or bud formation in broadleaf weeds. Allow three or more days before tillage or mowing.

For annual weeds over 6 inches tall, or when not using additional surfactant, or unless otherwise specified, use a 1 percent solution. For best results, use a 2 percent solution on harder-to-control perennials, such as bermudagrass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

When using application methods which result in less than complete coverage, use a 5 percent solution for annual and perennial weeds and a 5 to 10 percent solution for woody brush and trees.

Prepare the desired volume of spray solution by mixing the amount of this product in water as shown in the following table:

Desired Volume	Amount of Roundup®					
	1/4%	1%	1 1/2%	2%	5%	10%
1 Gal	3/4 oz	1 1/4 oz	2 oz	2 3/4 oz	6 3/4 oz	13 oz
2 1/2 Gal	1 qt	1 qt	1 1/4 qt	2 qt	5 qt	10 qt
100 Gal	2 qt	1 gal	1 1/2 gal	2 gal	5 gal	10 gal

2 Tablespoons = 1 fluid ounce

For use in knapsack sprayers, it is suggested that the recommended amount of this product be mixed with water in a larger container. Fill sprayer with the mixed solution.

SELECTIVE EQUIPMENT

This product may be applied through a recirculating spray system, a shielded applicator, or a wiper applicator after dilution and thorough mixing with water to listed weeds growing in any noncrop site specified on this label and only when specifically recommended in cropping systems.

A recirculating spray system directs the spray solution onto weeds growing above desirable vegetation, while spray solution not intercepted by weeds is collected and returned to the spray tank for reuse.

A shielded applicator directs the herbicide solution onto weeds, while shielding desirable vegetation from the herbicide.

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution.

AVOID CONTACT WITH DESIRABLE VEGETATION.

Contact of the herbicide solution with the desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that the lowest spray stream or wiper contact point is at least 2 inches above the desirable vegetation. Droplets, mist, foam, or splatter of the herbicide solution settling on desirable vegetation may result in discoloration, stunting, or destruction.

Applications made above the crops should be made when the weeds are a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatment may be necessary.

SHIELDED APPLICATORS

When applied as directed under conditions described for shielded applicators, this product will control those weeds listed in the "WEEDS CONTROLLED" section of this label.

Use the following equation to convert from a broadcast rate per acre to a band rate per acre:

$$\begin{array}{rcl} \text{Band width} & & \text{Herbicide} \\ \text{in inches} & \times & \text{Broadcast} \\ \text{Row width} & & \text{RATE} \\ \text{in inches} & & \text{per acre} \\ \hline & = & \text{Herbicide} \\ & & \text{Band RATE} \\ & & \text{per acre} \end{array}$$

$$\begin{array}{rcl} \text{Band width} & & \text{Broadcast} \\ \text{in inches} & \times & \text{VOLUME of} \\ \text{Row width} & & \text{solution} \\ \text{in inches} & & \text{per acre} \\ \hline & = & \text{Band} \\ & & \text{VOLUME} \\ & & \text{of solution} \\ & & \text{per acre} \end{array}$$

Use nozzles that provide uniform coverage within the treated area. Keep shields on shielded sprayers adjusted to protect desirable vegetation. **EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT WITH DESIRABLE VEGETATION.**

For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

WIPER APPLICATORS

Wiper applicators are devices that physically wipe appropriate amounts of this product directly onto the weed.

Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Operate this equipment at ground speeds no greater than 5 mph. Performance may be improved by reducing speed in areas of heavy weed infestations to ensure adequate wiper saturation. Better results may be obtained if 2 applications are made in opposite directions.

Avoid leakage or dripping onto desirable vegetation. Adjust height of applicator to ensure adequate contact with weeds. Keep wiping surfaces clean. Be aware that, on sloping ground, the herbicide solution may migrate, causing dripping on the lower end and drying of the wicks on the upper end of a wiper applicator.

Do not use wiper equipment when weeds are wet.

Mix only the amount of solution to be used during a 1-day period, as reduced activity may result from use of leftover solutions. Clean wiper parts immediately after using this product by thoroughly flushing with water.

Do not add surfactant to the herbicide solution.

For Rope or Sponge Wick Applicators—Mix 1 gallon of this product in 2 gallons of water to prepare a 33 percent solution. Apply this solution to weeds listed in this "WIPER APPLICATORS" section.

For Porous-Plastic Applicators—Solutions ranging from 33 to 100 percent of this product in water may be used in porous-plastic wiper applicators.

When applied as recommended under the conditions described for "WIPER APPLICATORS", this product **CONTROLS** the following weeds:

ANNUAL GRASSES

Corn	Rye, common
<i>Zea mays</i>	<i>Secale cereale</i>
Panicum, Texas	Shattercane
<i>Panicum texanum</i>	<i>Sorghum bicolor</i>

ANNUAL BROADLEAVES

Sicklepod

Cassia obtusifolia

Spanishneedles

Bidens bipinnata

Starbur, bristly

Acanthospermum hispidum

When applied as recommended under the conditions described for "WIPER APPLICATIONS", this product SUPPRESSES the following weeds:

ANNUAL BROADLEAVES

Beggartweed, Florida

Desmodium illinoense

Dogfennel

Eupatorium capilliflorum

Pigweed, redroot

Amaranthus retroflexus

Ragweed, common

Ambrosia artemisiifolia

Ragweed, giant

Ambrosia trifida

Sunflower

Helianthus annuus

Thistle, musk

Cirsium nutans

Velvetleaf

*Abutilon theophrasti***PERENNIAL GRASSES**

Bermudagrass

Cynodon dactylon

Guineagrass

Panicum maximum

Johnsongrass

Sorghum halepense

Smutgrass

Sporobolus poiretii

Vaseygrass

*Paspalum urvillei***PERENNIAL BROADLEAVES**

Dogbane, hemp

Apocynum cannabinum

Milkweed

Asclepias syriaca

Nightshade, silverleaf

Solanum elaeagnifolium

Thistle, Canada

*Cirsium arvense***WEEDS CONTROLLED**

This herbicide controls many annual and perennial grasses and broadleaf weeds.

ANNUAL WEEDS

- Apply to actively growing grass and broadleaf weeds.
- Allow at least 3 days after treatment before tillage.
- For maximum agronomic benefit, apply when weeds are 6 inches or less in height.
- To prevent seed production, applications should be made prior to seedhead formation.
- This product does not provide residual control; therefore, delay application until maximum weed emergence. Repeat treatments may be necessary to control later germinating weeds.

**LOW-VOLUME BROADCAST APPLICATION
(LOW-RATE TECHNOLOGY)**

When applied as directed under the conditions described, this product will control the weeds listed below when:

1. Water carrier volumes of 3 to 10 gallons per acre for ground applications and 3 to 5 gallons per acre for aerial applications are recommended. (See the "AERIAL APPLICATION" section of this label for approved sites.)
2. A nonionic surfactant is added at 0.5 to 1 percent by total spray volume. Use 0.5 percent surfactant concentration when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration for those surfactants containing less than 70 percent active ingredient.

NOTE

- The addition of 2 percent dry ammonium sulfate by weight or 17 pounds per 100 gallons of water may increase the performance of this product on annual weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.

- Do not tank-mix with soil residual herbicides when using these rates unless otherwise specified.
- For weeds that have been mowed, grazed or cut, allow regrowth to occur prior to treatment.
- Refer to the "TANK MIXTURES" portion of this section for control of additional broadleaf weeds.

WEED SPECIES	MAXIMUM HEIGHT/LENGTH	RATE PER ACRE* (Fluid Ounces)
Foxtail <i>Setaria spp.</i>	12"	8 oz.
Barryardgrass <i>Echinochloa crus-galli</i>	5" (0 to 4") (4 to 5")	12 oz. 16 oz. ¹⁾ 24 oz. ¹⁾
Bluegrass, annual <i>Poa annua</i>		
Brome, downy** <i>Bromus tectorum</i>		
Mustard, blue <i>Chorispora tenella</i>		
Mustard, tansy <i>Descurainia pinnata</i>		
Mustard, tumble <i>Sisymbrium altissimum</i>		
Mustard, wild <i>Sinapis arvensis</i>		
Spurry, umbrella <i>Holosteum umbellatum</i>		
Barley <i>Hordeum vulgare</i>	12"	

Rye <i>Secale cereale</i>		
Sandbar, field <i>Cenchrus spp.</i>		
Shattercane <i>Sorghum bicolor</i>		
Stinkgrass <i>Eragrostis cilianensis</i>		
Wheat <i>Triticum aestivum</i>	18"	
Morningglory <i>Ipomoea spp.</i>	2"	16 oz.
Sicklepod <i>Cassia obtusifolia</i>		
Bluegrass, bulbous <i>Poa bulbosa</i>	6"	
Cheat <i>Bromus secalinus</i>		
Chickweed, common <i>Stellaria media</i>		
Chickweed, mouseear <i>Cerastium vulgatum</i>		
Corn <i>Zea mays</i>		
Goatgrass, jointed <i>Aegilops cyathica</i>		
Gromwell, common <i>Senecio vulgaris</i>		
Henbit <i>Lamium amplexicaule</i>		

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WEED SPECIES	MAXIMUM HEIGHT/LENGTH	RATE PER ACRE* (Fluid Ounces)
Horseweed/Marestail <i>Coryza canadensis</i>	6"	16 oz.
Lambsquarters, common <i>Chenopodium album</i>		
Penmycress, field Fatweed <i>Thlaspi arvense</i>		
Rocket, London <i>Sisymbrium irio</i>		
Ryegrass, Italian <i>Lolium multiflorum</i>		
Shepherdspurse <i>Capsella bursa-pastoris</i>		
Spurge, annual <i>Euphorbia</i> spp.		
Buttercup <i>Ranunculus</i> spp.	12"	16 oz.
Cocklebur <i>Xanthium strumarium</i>		
Crabgrass <i>Digitaria</i> spp.		
Dwarf dandelion <i>Rigida cespitosa</i>		
Falseflax, smallseed <i>Camelina microcarpa</i>		
Foxtail, Carolina <i>Alopecurus carolinianus</i>		

Johnsongrass, seedling
Sorghum halepense

Oats, wild
Avena fatua

Panicum, fall
Panicum dichotomiflorum

Panicum, Texas
Panicum texanum

Pigweed, redroot
Amaranthus retroflexus

Pigweed, smooth
Amaranthus hybridus

Witchgrass
Panicum capillare

Sicklepod
Cassia obtusifolia

Signalgrass, broadleaf
Brachiaria platyphylla

Horseweed/Marestail
Coryza canadensis

Lambsquarters, common
Chenopodium album

Spurge, annual
Euphorbia spp.

Rice, red
Oryza sativa

Tea weed
Sida spinosa

Sprangletop
Leptochloa spp.

WEED SPECIES	MAXIMUM HEIGHT/LENGTH	RATE PER ACRE* (Fluid Ounces)
Geranium, Carolina <i>Geranium carolinianum</i>	12"	32 oz.
Goosegrass <i>Eleusine indica</i>		
Primrose, cutleaf evening <i>Oenothera laciniate</i>		
Pusley, Florida <i>Richardia scabra</i>		
Sicklepod <i>Cassia obtusifolia</i>	5 to 12"	
Spanishneedles <i>Bidens bipinnata</i>		
Filariae <i>Erodium</i> spp.	12"	48 oz.
Sprangletop <i>Leptochloa</i> spp.		

Use these rates to control barnyardgrass in Alabama, Arkansas, Mississippi, Missouri, Louisiana and Texas for preplant treatments.

*For those rates less than 32 fluid ounces per acre, this product at rates up to 32 fluid ounces per acre may be used where heavy weed densities exist.

**For control in no-till systems, use 16 fluid ounces per acre.

TANK MIXTURES

Roundup plus BANVEL plus NONIONIC SURFACTANT

Roundup plus 2,4-D plus NONIONIC SURFACTANT

DO NOT APPLY BANVEL OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA.

These tank mixtures are recommended for use in fallow and reduced tillage areas only. Follow use directions as given in the "LOW-VOLUME BROADCAST APPLICATION" section.

This product plus Banvel or 2,4-D will control the annual grasses and broadleaf weeds listed for this product alone at the indicated heights (except 8 fluid ounces per acre applications), plus the following broadleaf weeds. For those weeds previously listed at 8 fluid ounces of this product alone per acre, use 12 fluid ounces in these tank mixtures.

NOTE: Refer to the specific product labels for crop rotation restrictions and cautionary statements of all products used in tank mixtures. Some crop injury may occur if Banvel is applied within 45 days of planting. The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed species.

Apply 12 to 16 fluid ounces of this product plus 0.25 lb. a.i. of Banvel or 0.5 pound a.i. of 2,4-D, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre to control dense populations of the following annual broadleaf weeds when less than the height indicated:

Cocklebur (12") <i>Xanthium strumarium</i>	Morningglory (6") <i>Ipomoea</i> spp.
Kochia* (6") <i>Kochia scoparia</i>	Pigweed, redroot (12") <i>Amaranthus retroflexus</i>
Lambsquarters (12") <i>Chenopodium album</i>	Pigweed, smooth (12") <i>Amaranthus hybridus</i>
Lettuce, prickly (6") <i>Lactuca scariola</i>	Thistle, Russian (12") <i>Salsola kali</i>
Marestail/Horseweed (6") <i>Coryza canadensis</i>	

*Controlled with Banvel tank mixture only.

Apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre to control the following annual broadleaf weeds when less than 6 inches in height.

Ragweed, common <i>Ambrosia artemisiifolia</i>	Smartweed, Pennsylvania <i>Polygonum pennsylvanicum</i>
Ragweed, giant <i>Ambrosia trifida</i>	Velvetleaf <i>Abutilon theophrasti</i>

HIGH-VOLUME BROADCAST APPLICATIONS

When applied as directed under the conditions described, this product will control the weeds listed below when water carrier volumes are 10 to 40 gallons per acre for ground applications.

Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume. Use 1 quart per acre if weeds are less than 6 inches tall and 1.5 quarts per acre if weeds are over 6 inches tall. If weeds have been mowed, grazed, or cut, allow adequate time for new growth to reach recommended stages prior to treatment. These rates will also provide control of weeds listed in the "LOW-VOLUME BROADCAST APPLICATION" section.

WEED SPECIES

Balsamapple* <i>Momordica charantia</i>	Panicum <i>Panicum spp.</i>
Bassia, fivehook <i>Bassia hyssopifolia</i>	Ragweed, common <i>Ambrosia artemisiifolia</i>
Brome <i>Bromus spp.</i>	Ragweed, giant <i>Ambrosia trifida</i>
Fiddleneck <i>Amsinckia spp.</i>	Smartweed, Pennsylvania <i>Polygonum pennsylvanicum</i>
Fleabane, hairy <i>Conyza bonariensis</i>	Sowthistle, annual <i>Sonchus oleraceus</i>
Fleabane <i>Erigeron spp.</i>	Sunflower <i>Helianthus annuus</i>

Kochia <i>Kochia scoparia</i>	Thistle, Russian <i>Salsola kali</i>
Lettuce, prickly <i>Lactuca scariola</i>	Velvetleaf <i>Abutilon theophrasti</i>

* Apply with hand-held equipment only.

PERENNIAL WEEDS

Apply this product as follows to control or destroy most perennial weeds:

NOTE: If weeds have been mowed or tilled, do not treat until plants have resumed active growth and have reached the recommended stages.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Repeat treatments must be made prior to crop emergence.

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product on perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.

When applied as recommended under the conditions described, this product WILL CONTROL the following PERENNIAL WEEDS:

Alfalfa <i>Medicago sativa</i>	Bentgrass <i>Agrostis spp.</i>
Alligatorweed* <i>Alternanthera philoxeroides</i>	Bermudagrass <i>Cynodon dactylon</i>
Artichoke, Jerusalem <i>Helianthus tuberosus</i>	Bermudagrass, water (knotgrass) <i>Paspalum distichum</i>
Bahiagrass <i>Paspalum notatum</i>	Bindweed, field <i>Convolvulus arvensis</i>

PERENNIAL WEEDS (continued)

Bluegrass, Kentucky <i>Poa spp.</i>	Muhly, wirestem <i>Muhlenbergia frondosa</i>
Blueweed, Texas <i>Helianthus ciliaris</i>	Mullein, common <i>Verbascum thapsus</i>
Brackenfern <i>Pteridium aquilinum</i>	Napiergrass <i>Pennisetum purpureum</i>
Bromegrass, smooth <i>Bromus inermis</i>	Nightshade, silverleaf <i>Solanum elaeagnifolium</i>
Bursage, woollyleaf <i>Franseria tomentosa</i>	Nutsedge, purple, yellow <i>Cyperus rotundus</i> <i>Cyperus esculentus</i>
Canarygrass, reed <i>Phalaris arundinacea</i>	Orchardgrass <i>Dactylis glomerata</i>
Cattail <i>Typha spp.</i>	Pampasgrass <i>Cortaderia jubata</i>
Clover, red <i>Trifolium pratense</i>	Paragrass <i>Brachiaria mutica</i>
Clover, white <i>Trifolium repens</i>	Phragmites* <i>Phragmites spp.</i>
Cogongrass <i>Imperata cylindrica</i>	Quackgrass <i>Agropyron repens</i>
Dallisgrass <i>Paspalum dilatatum</i>	Redvine* <i>Brunnichia ovata</i>
Dandelion <i>Taraxacum officinale</i>	Reed, giant <i>Arundo donax</i>
Dock, curly <i>Rumex crispus</i>	Ryegrass, perennial <i>Lolium perenne</i>
Dogbane, hemp <i>Apocynum cannabinum</i>	Smartweed, swamp <i>Polygonum coccineum</i>
Fescues <i>Festuca spp.</i>	

Fescue, tall <i>Festuca arundinacea</i>	Sporge, leafy* <i>Euphorbia esula</i>
Guineagrass <i>Panicum maximum</i>	Sweet potato, wild* <i>Ipomoea pandurata</i>
Horsenettle <i>Solanum carolinense</i>	Thistle, Canada <i>Cirsium arvense</i>
Horseradish <i>Armoracia rusticana</i>	Timothy <i>Phleum pratense</i>
Johnsongrass <i>Sorghum halepense</i>	Torpedograss* <i>Panicum repens</i>
Kikuyugrass <i>Pennisetum clandestinum</i>	Trumpet creeper* <i>Campsis radicans</i>
Knapweed <i>Centaurea repens</i>	Vaseygrass <i>Paspalum urvillei</i>
Lantana <i>Lantana camara</i>	Wheatgrass, western <i>Agropyron smithii</i>
Milkweed <i>Asclepias spp.</i>	
*Partial Control	

This product is not registered in California for use on water bermudagrass.

See "DIRECTIONS FOR USE" and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for labeled uses and specific application instructions.

Alfalfa—Apply 1 quart of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make application after the last hay cutting in the fall. Allow alfalfa to regrow to a height of 6 to 8 inches or more prior to treatment. Applications should be followed with deep tillage at least 7 days after treatment, but before soil freeze-up.

Alligatorweed—Apply 4 quarts of this product per acre or apply a 1.5 percent solution with hand-held equipment to provide partial control. Apply when most of the plants are in bloom. Repeat applications will be required to maintain such control.

Bentgrass—For suppression in grass seed production areas. For ground applications only, apply 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure entire crown area has resumed growth prior to a fall application. Bentgrass should be actively growing and have at least 3 inches of growth. Tillage prior to treatment should be avoided. Tillage 7 to 10 days after application is recommended for best results. Failure to use tillage after treatment may result in unacceptable control.

Bermudagrass—For control, apply 5 quarts of this product per acre. For partial control, apply 3 quarts per acre. Treat when bermudagrass is actively growing and seedheads are present. Retreatment may be necessary to maintain control. Allow 7 or more days after application before tillage.

Bermudagrass, water (knotgrass)—Apply 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Apply when water bermudagrass is actively growing and 12 to 18 inches in length. Allow 7 or more days before tilling, flushing or flooding the field.

Fall applications only—Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Fallow fields should be tilled prior to application. Apply prior to frost on water bermudagrass that is actively growing and 12 to 18 inches in length. Allow 7 or more days before tillage.

Bindweed, field—For control, apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts east of the Mississippi River. Apply when the weeds are actively growing and are at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Also for control, apply 2 quarts of this product plus 0.5 pound a.i. of Banvel in 10 to 20 gallons of water per acre. At these rates, apply using ground application only.

The following tank mixtures with 2,4-D may be applied using aerial application equipment (except in California) in fallow and reduced tillage systems only.

For suppression on irrigated agricultural land, apply 1 to 2 quarts of this product plus 1 pound a.i. of 2,4-D in 10 to 20 gallons of water per acre with ground equipment only. Applications should be made following harvest or in fall fallow ground when the bindweed is actively growing and the majority of runners are 12 inches or more in length. The use of at least one irrigation will promote active bindweed growth.

For suppression, apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Applications should be delayed until maximum emergence has occurred and when vines are between 6 to 18 inches in length.

In California only, apply 1 to 5 quarts of this product per acre. Actual rate needed for suppression or control will vary within this range depending on local conditions.

For suppression on irrigated land where annual tillage is performed, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing bindweed that has reached a length of 12 inches or greater. Allow maximum weed emergence and runner growth. Do not treat when weeds are under drought stress as good soil moisture is necessary for active growth. Allow 3 or more days after application before tillage.

Bluegrass, Kentucky / Bromegrass, smooth / Orchardgrass—Apply 2 quarts of this product in 10 to 40 gallons of water per acre when the grasses are actively growing and most plants have reached boot-to-early seedhead stage of development. For partial control in pasture or hay crop renovation, apply 1 to 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing plants when most have reached 4 to 12 inches in height. Allow 7 or more days after application before tillage.

Orchardgrass (sods going to no-till corn)—Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to orchardgrass that is a minimum of 12 inches tall for spring applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting. A sequential application of atrazine will be necessary for optimum results.

Blueweed, Texas—Apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts per acre east of the Mississippi River. Apply when weed is actively growing and is at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. New leaf development indicates active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Brackenfern—Apply 3 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment. Apply to fully expanded fronds which are at least 18 inches long.

Bursage, woollyleaf—For control, apply 2 quarts of this product plus 1 pint of Banvel per acre. For partial control, apply 1 quart of this product plus 1 pint of Banvel per acre. Add 0.5 to 1 percent nonionic surfactant by total spray volume and apply in 3 to 20 gallons of water per acre. Apply when plants are producing new active growth which has been initiated by moisture for at least 2 weeks and when plants are at or beyond flowering.

Canarygrass, reed / Timothy / Wheatgrass, western—Apply 2 to 3 quarts of this product per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth. Allow 7 or more days after application before tillage.

Cogongrass—Apply 3 to 5 quarts of this product plus 0.5 to 1 percent nonionic surfactant in 10 to 40 gallons of water per acre. Apply when Cogongrass is at least 18 inches tall and actively growing in late summer or fall. Allow 7 or more days after application before tillage or mowing. Due to uneven stages of growth and the dense nature of vegetation preventing good spray coverage, repeat treatments may be necessary to maintain control.

Dandelion / Dock, curly—Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre.

Dogbane, hemp—Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage.

For suppression, apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Delay applications until maximum emergence of dogbane has occurred.

Fescue, tall—Apply 3 quarts of this product in 10 to 40 gallons of water per acre to actively growing plants when most have reached boot-to-early seedhead stage of development.

Fall applications only—Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to fescue in the fall when actively growing and plants have 6 to 12 inches of new growth. Allow 7 or more days after application before tillage. A sequential application of 1 pint per acre of this product plus nonionic surfactant will improve long-term control and control seedlings germinating after fall treatments or the following spring.

Guineagrass—Apply 3 quarts of this product per acre or use a 1 percent solution with hand-held equipment. Apply to actively growing guineagrass when most has reached at least the 7-leaf stage of growth. Ensure thorough coverage when using hand-held equipment. Allow 7 or more days after application before tillage.

Johnsongrass / Ryegrass, perennial—Apply 1 to 3 quarts of this product per acre. In annual cropping systems apply 1 to 2 quarts of this product per acre. Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre. In noncrop, or areas where annual tillage (no-till) is not performed, apply 2 to 3 quarts of this product in 10 to 40 gallons of water per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth or in the fall prior to frost. Allow 7 or more days after application before tillage. Do not tank-mix with residual herbicides when using the 1 quart per acre rate.

For burndown of Johnsongrass, apply 1 pint per acre plus 0.5 to 1 percent nonionic surfactant in 3 to 10 gallons of water per acre before the plants reach a height of 12 inches. For this use, allow at least 3 days after treatment before tillage.

Spot treatment (partial control or suppression)—Apply a 1 percent solution of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume when Johnsongrass is 12 to 18 inches in height. Coverage should be uniform and complete.

Kikuyugrass—Apply 2 to 3 quarts of this product per acre. Spray when most kikuyugrass is at least 8 inches in height (3 or 4-leaf stage of growth) and actively growing. Allow 3 or more days after application before tillage.

Knapweed / Horseradish—Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage.

Lantana—Apply this product as a 1 to 1.25 percent solution using hand-held equipment only. Apply to actively growing lantana at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth. Allow 7 or more days after application before tillage.

Milkweed, common—Apply 3 quarts of this product per acre. Apply when actively growing and most of the milkweed has reached the late bud to flower stage of growth. Following small grain harvest or mowing, allow milkweed to regrow to a mature stage prior to treatment. Allow 7 or more days after application before tillage.

Muhly, wirestem—Apply 1 to 2 quarts of this product per acre. Use 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre or in pasture, sod, or noncrop areas. Spray when the wirestem muhly is 8 inches or more in height and actively growing. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage. This product will not provide residual control of wirestem muhly from seeds which germinate after application of this product. Do not tank mix with residual herbicides when using the 1 quart per acre rate.

Nightshade, silverleaf—For control, apply 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Applications should be made when at least 60 percent of the plants have berries. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage. Do not treat when weed is under drought stress, as good soil moisture is necessary for active growth.

Nutsedge, purple, yellow—Apply 3 quarts of this product per acre as a broadcast spray, or apply a 1 to 2 percent solution from hand-held equipment to control existing nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Repeat treatments will be required for long-term control of ungerminated tubers.

Sequential applications of 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre will provide control. Make applications when a majority of the plants are in the 3 to 5-leaf stage (less than 6 inches tall). Repeat this application, as necessary, when newly emerging plants reach the 3 to 5-leaf stage. Subsequent applications will be necessary for long-term control.

For suppression to partial control of existing plants, apply 1 pint to 2 quarts of this product per acre, plus 0.5 to 1 percent nonionic surfactant in 3 to 40 gallons of water per acre. Treat when plants have 3 to 5 leaves and most are less than 6 inches tall. Repeat treatments will be required to control subsequent emerging plants or regrowth of existing plants. Wait 7 days after treatment before tillage or mowing.

Pampasgrass—Apply this product as a 1.5 to 2 percent solution using hand-held equipment. Apply to plants that are actively growing at or beyond the boot stage of growth. Thorough coverage is necessary for best control.

Phragmites—For partial control of phragmites in Florida and the counties of other states bordering the Gulf of Mexico, apply 5 quarts per acre as a broadcast spray or apply a 2 percent solution from hand-held equipment. In other areas of the U.S., apply 3 quarts per acre as a broadcast spray or apply a 1 percent solution from hand-held equipment for partial control. For best results, treat during late summer or fall months or when plants are actively growing and in full bloom. Treatment before or after this stage may lead to reduced control. Due to the dense nature of the vegetation, which may prevent good spray coverage or uneven stages of growth, repeat treatments may be necessary to maintain control. Visual control symptoms will be slow to develop.

Quackgrass—In Annual Cropping Systems, or in Pastures and Sod's Followed by Deep Tillage: Apply 1 to 2 quarts of this product per acre. For the 1 quart rate, apply 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. For the 2 quart rate, apply in 10 to 40 gallons of water per acre. Do not tank mix with residual herbicides when using the 1 quart rate. Spray when quackgrass is 6 to 8 inches in height and actively growing. Do not till between harvest and fall applications or in fall or spring prior to spring application. Allow 3 or more days after application before tillage. In pastures or sods, for best results use a moldboard plow.

Quackgrass—Pasture or Sod or Other Noncrop Areas Where Deep Tillage is Not Planned Following Application: Apply 2 to 3 quarts in 10 to 40 gallons of water per acre. Spray when the quackgrass is greater than 8 inches tall and actively growing. Do not till between harvest and fall application or in fall or spring prior to spring application. Allow 3 or more days after application before tillage.

Redvine—For suppression, apply 24 fluid ounces of this product per acre at each of two applications 7 to 14 days apart or a single application of 2 quarts per acre. Apply recommended rates in 5 to 10 gallons of water per acre plus 0.5 to 1 percent nonionic surfactant by total volume. Apply to actively growing plants in late September or early October.

which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

Reed, giant—For control of giant reed, apply a 2 percent solution of this product when plants are actively growing. Best results are obtained when applications are made in late summer to fall.

Smartweed, swamp—Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fluid ounces of this product plus 0.5 pound active ingredient of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Spurge, leafy—For suppression, apply 16 fluid ounces of this product plus 0.5 pound active ingredient 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing. If mowing has occurred prior to treatment, apply when most of the plants are 12 inches tall. Allow 7 or more days after application before tillage.

Sweet Potato, wild—Apply this product as a 2 percent solution using hand-held equipment. Apply to actively growing weeds that are at or beyond the bloom stage of growth. Repeat applications will be required. Allow the plant to reach the recommended stage of growth before retreatment. Allow 7 or more days before tillage.

Thistle, Canada—Apply 2 to 3 quarts of this product per acre. Apply to actively growing thistles when most are at or beyond the bud stage of growth. After harvest, mowing or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to the application of this product. Fall treatments must be applied before a killing frost. Allow 3 or more days after application before tillage.

For suppression of Canada thistle, apply 1 quart per acre of this product, or 1 pint of this product plus 0.5 pound a.i. 2,4-D per acre, plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall after harvest, mowing or tillage. Allow rosette regrowth to a minimum of 6 inches in diameter before treating. Applications can be made as long as leaves are still green and plants are actively growing at the time of application. Allow 3 or more days after application before tillage.

Torpedograss—Apply 4 to 5 quarts of this product per acre to provide partial control of torpedograss. Apply to actively growing torpedograss when most plants are at or beyond the seedhead stage of growth. Repeat applications will be required to maintain control. Fall treatments must be applied before frost. Allow 7 or more days after application before tillage.

Trumpet creeper—For control, apply 2 quarts of this product per acre in 5 to 10 gallons of water per acre. Apply to actively growing plants in late September or October, which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

Other perennials listed on this label—Apply 3 to 5 quarts of this product per acre. Apply when actively growing and most have reached early head or early bud stage of growth. Allow 7 or more days after application before tillage.

WOODY BRUSH AND TREES

When applied as recommended under the conditions described, this product **CONTROLS** or **PARTIALLY CONTROLS** the following woody brush, plants and trees:

Alder	Broom:
<i>Alnus</i> spp.	French
Ash*	Cytisus
<i>Fraxinus</i> spp.	monspessulanus
Aspen, quaking	Scotch
<i>Populus tremuloides</i>	Cytisus scoparius
Bearmat (Bearclover)	Buckwheat, California*
<i>Chamaebatia foliolosa</i>	<i>Eriogonum fasciculatum</i>
Birch	Cascara*
<i>Betula</i> spp.	<i>Rhamnus purshiana</i>
Blackberry	Catsclaw*
<i>Rubus</i> spp.	<i>Acacia greggii</i>
	<i>Ceanothus</i> *
	<i>Ceanothus</i> spp.

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WOODY BRUSH AND TREES (continued)

Chamise
*Adenostoma fasciculatum**

Cherry:

Bitter

Prunus emarginata

Black

Prunus serotina

Pin

Prunus pensylvanica

Coyote brush

Baccharis consanguinea

Creeper, Virginia*

Parthenocissus

quinquefolia

Dewberry

Rubus trivialis

Elderberry

Sambucus spp.

Elm*

Ulmus spp.

Eucalyptus

Eucalyptus spp.

Hasardia*

Haplopappus squamosus

Hawthorn

Crataegus spp.

Hazel

Corylus spp.

Honeysuckle

Lonicera spp.

Persimmon*

Diospyros spp.

Poison Ivy

Rhus radicans

Poison Oak

Rhus toxicodendron

Poplar, yellow*

Liriodendron tulipifera

Raspberry

Rubus spp.

Rose, multiflora

Rosa multiflora

Russian-olive***

Elaeagnus angustifolia

Sage, black

Salvia meliaria

Sagebrush, California

Artemisia californica

Salmonberry

Rubus spectabilis

Sassaparilla

Sassafras albidum

Sourwood

Ostrya arborescens

Kudzu

Pueraria lobata

Locust, black*

Robinia pseudoacacia

Madrone

Arbutus menziesii

Manzanita

Arctostaphylos spp.

Maple:

Red**

Acer rubrum

Sugar

Acer saccharum

Vine*

Acer circinatum

Monkey Flower*

Mimulus guttatus

Oak:

Black*

Quercus velutina

Northern Pin

Quercus palustris

Post

Quercus stellata

Red

Quercus rubra

Southern Red

Quercus falcata

White*

Quercus alba

*Partial control

**See below for control or partial control instructions.

***This product is not registered in California for use on Russian-olive.

Sumac:

Poison*

Rhus vernix

Smooth*

Rhus glabra

Winged*

Rhus copallina

Sweetgum

Liquidambar styraciflua

Swordfern*

Polystichum munifolium

Tallowtree, Chinese

Sapium sebiferum

Tan Oak

Lithocarpus densiflorus

Thimbleberry

Rubus parviflorus

Tobacco, tree*

Nicotiana glauca

Trumpet creeper

Campsis radicans

Willow

Salix spp.

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NOTE: If brush has been mowed or killed or trees have been cut, do not treat until regrowth has reached the recommended stages of growth.

Apply this product when plants are actively growing and, unless otherwise directed, after full leaf expansion. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when application is made in the spring to early summer when brush species are at high moisture content and are flowering.

Ensure thorough coverage when using hand-held equipment. Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

See "DIRECTIONS FOR USE", and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for labeled uses and specific application instructions.

Apply this product as follows to control or partially control the following woody brush and trees.

Alder / Dewberry / Monksuckle / Post Oak / Raspberry—For control, apply 3 to 4 quarts per acre of this product as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment.

Aspen, quaking / Cherry, bitter, black, pin / Hawthorn / Oak, southern red / Sweetgum / Trumpet creeper—For control, apply 2 to 3 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment.

Birch / Elderberry / Hazel / Salmonberry / Thimbleberry—For control, apply 2 quarts per acre of this product as a broadcast spray or as a 1 percent solution with hand-held equipment.

Blackberry—For control, apply 3 to 4 quarts per acre of this product as a broadcast spray, or 1 to 1.5 percent solution with hand-held equipment. Make application after plants have reached full leaf maturity. Best results are obtained when applications are made in late summer or fall. After berries have set or dropped in late fall, blackberry can

be controlled by applying a 3/4 percent solution of this product plus 0.5 to 1 percent non-ionic surfactant by total spray volume with hand-held equipment. For control of blackberries after leaf drop and until killing frost or as long as stems are green, apply 3 to 4 quarts of this product in 10 to 40 gallons of water per acre.

Broom, French, Scotch—For control, apply a 1.5 to 2 percent solution with hand-held equipment.

Buckwheat, California / Madardio / Monkey Flower / Tobacco, tree—For partial control of these species, apply a 1 to 2 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

Catsclaw—For partial control, apply as a 1 to 1.5 percent solution with hand-held equipment.

Coyote Brush—For control, apply a 1.5 to 2 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.

Eucalyptus—For control of eucalyptus resprouts, apply a 2 percent solution of this product with hand-held equipment when resprouts are 6 to 12 feet tall. Ensure complete coverage. Apply when plants are growing actively. Avoid application to drought-stressed plants.

Kudzu—For control, apply 4 quarts of this product per acre as a broadcast spray or as a 2 percent solution with hand-held equipment. Repeat applications will be required to maintain control.

Madrone resprouts—For suppression or partial control, apply a 2 percent solution of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with spring/early summer treatments.

Maple, red—For control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed. For partial control, apply 2 to 4 quarts of this product per acre as a broadcast spray.

Maple, sugar / Oak, northern pin / Oak, red—For control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.

Poison Ivy / Poison Oak—For control, apply 4 to 5 quarts of this product per acre as a broadcast spray or as a 2 percent solution with hand-held equipment. Repeat applications may be required to maintain control. Fall treatments must be applied before leaves lose green color.

Rose, multiflora—For control, apply 2 quarts of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment. Treatments should be made prior to leaf deterioration by leaf-feeding insects.

Sage, black / Sagebrush, California / Chamise / Tallowtree, Chinese—For control of these species, apply a 1 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

Tan oak resprouts—For suppression or partial control, apply a 2 percent solution of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with fall applications.

Willow—For control, apply 3 quarts of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment.

Other Woody Brush and Trees listed on this label—For partial control, apply 2 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 2 percent solution with hand-held equipment.

NONCROP USES

See "GENERAL INFORMATION" and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for essential product performance information and the following "NONCROP" sections for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE FURF-CRASSES, TREES, SHRUBS OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seeds.

This product does not provide residual weed control. For subsequent weed control, follow a label-approved herbicide program.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

INDUSTRIAL, RECREATIONAL AND PUBLIC AREAS

When applied as directed for "NONCROP USES", under conditions described, this product controls annual and perennial weeds listed on this label growing in areas such as airports, ditch banks, dry ditches, dry canals, fencerows, golf courses, highways, industrial plant sites, lumber yards, parking areas, parks, petroleum tank farms and pumping installations, railroads, roadsides, schools, storage areas, utility substations, other public areas and similar industrial or noncrop areas.

For specific rates of application and instructions for control of various annual and perennial weeds and woody brush and trees, see the "WEEDS CONTROLLED" section of this label.

This product may be applied with recirculating sprayers, shielded applicators, or wiper applicators in any noncrop site specified on this label. See the Selective Equipment part of "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for information on proper use and calibration of this equipment.

TANK MIXTURES FOR INDUSTRIAL SITES

Roundup plus OUST™

Use on industrial sites including airports, industrial plants, lumberyards, petroleum tank farms, pumping stations, pipelines, railroads, roadsides, storage areas or other similar sites where bare ground is desired.

When applied as directed for "NONCROP USES" under the conditions described, this product plus Oust provides control of annual weeds listed in the "WEEDS CONTROLLED" section of the label for this product and Oust, and control or partial control of the perennial weeds listed below.

Apply 1 to 2 quarts of this product with 2 to 4 ounces of Oust in 10 to 40 gallons of spray solution per acre as a broadcast spray to actively growing weeds.

When applied by air, use the recommended rates in 5 to 15 gallons of spray solution per acre.

This product plus Oust tank mixtures may not be applied by air in California.

For control of annual weeds, use the lower rates of these products.

For control of the listed perennial weeds, use the higher rates of both products. For partial control, use the lower rates.

Bahiagrass <i>Paspalum notatum</i>	Johnsongrass** <i>Sorghum halepense</i>
Bermudagrass* <i>Cynodon dactylon</i>	Poorjoe** <i>Diodia teres</i>
Broomsedge <i>Andropogon virginicus</i>	Quackgrass <i>Agropyron repens</i>
Dock, curly <i>Rumex crispus</i>	Trumpet creeper* <i>Campsis radicans</i>
Dogfennel <i>Eupatorium capillifolium</i>	Vaseygrass <i>Paspalum urvillei</i>
Fescue, tall <i>Festuca arundinacea</i>	Vervain, blue <i>Verbena hastata</i>

* Suppression at the higher rates only.

** Control at the lower rates.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

TANK MIXTURES NONCROP SITES

When applied as a tank mixture, this product provides control of the emerged annual weeds and partial control of the emerged perennial weeds listed in this label. When applied as a tank mixture, the following residual herbicides will provide preemergence control of the weeds listed in the individual product labels.

■	Roundup plus DIURON	■
■	Roundup plus KROVAR™ I	■
■	Roundup plus KROVAR II	■
■	Roundup plus RONSTAR™ 50WP	■
■	Roundup plus SIMAZINE, PRINCEP™ CALIBER™ 90	■

■	Roundup plus SIMAZINE 4L	■
■	Roundup plus SIMAZINE 80W	■
■	Roundup plus SURFLAN™ 75W	■
■	Roundup plus SURFLAN AS	■

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution. See the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label before preparing these tank mixtures.

Read and carefully observe the label claims, cautionary statements, recommended use rates and all other information on the labels of all products used in these tank mixtures. Use according to the most restrictive label directions for each product in the mixture.

CONTROL OF EMERGED WEEDS

Annual Weeds—Apply 1 quart per acre of this product in these tank mixtures when weeds are less than 6 inches tall and 1.5 quarts per acre when weeds are more than 6 inches tall.

Perennial Weeds—For partial control of perennial weeds using these tank mixtures, apply 2 to 5 quarts per acre of this product. Follow the recommendations in the "WEEDS CONTROLLED" section of this label for stage of growth and rate of application for specific perennial weeds.

PREEMERGENCE WEED CONTROL

For preemergence weed control, refer to the individual product labels for specific noncrop sites, rates, carrier volumes and precautionary statements.

Mix only the quantity of spray solution which can be used during the same day. Do not allow these tank mixtures to stand overnight as this may result in reduced weed control.

APPLY THESE TANK MIXTURES THROUGH CONVENTIONAL BROADCAST EQUIPMENT ONLY.

FARMSTEAD WEED CONTROL

When applied as directed for "NONCROP USES", under conditions described, this product controls undesirable vegetation listed on this label around farmstead building foundations, along and in fences, shelterbelts and for general nonselective farmstead weed control.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

FARM DITCHES

This product will suppress perennial grasses along farm ditches. Apply this product at a rate of 6 to 8 fluid ounces per acre. Use 8 fluid ounces per acre when treating tall (coarse) fescue, fine fescue, orchardgrass or quackgrass covers. For best suppression of these species, add ammonium sulfate at a rate of 1.7 pounds per 10 gallons of spray solution. Use 6 fluid ounces per acre without ammonium sulfate when treating Kentucky bluegrass.

Apply treatments in 10 to 20 gallons of spray solution per acre to actively growing perennial grass covers. For best spray distribution and coverage, use flat fan nozzles.

Add a nonionic surfactant at a rate of 0.5 percent of the spray solution.

Where broadleaf weed control or suppression is desired, tank mix this product with an appropriate, labeled broadleaf weed herbicide.

CONSERVATION RESERVE PROGRAM (CRP ACRES)

This product can be used to control undesirable vegetation when rotating out of CRP acres or to suppress competitive growth and seed production of undesirable vegetation in CRP acres.

For specific rates of application for various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

CRP applications may be made with wider applicators or conventional spray equipment.

For selective applications with broadcast spray equipment, apply 12 to 16 ounces per acre of this product in early spring before desirable CRP grasses, such as crested and tall wheatgrass, break dormancy and initiate green growth. Late fall applications can be made after desirable perennial grasses have reached dormancy. Some stunting of CRP perennial grasses will occur if applications are made when plants are not dormant.

HABITAT MANAGEMENT

This product is recommended for the restoration and/or maintenance of native habitats and in wildlife management areas. Apply as recommended in the "NONCROP USES" section of this label.

Habitat Restoration and Maintenance—When applied as directed, exotic and other undesirable vegetation may be controlled in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broadspectrum vegetation control requirements in habitat management areas. Spot treatments can be made to selectively remove unwanted plants for habitat maintenance and enhancement. For spot treatments, care should be exercised to keep spray off of desirable plants.

Wildlife Food Plots—This product may be used as a site preparation treatment prior to planting wildlife food plots. Any wildlife food species may be planted after applying this product, or native species may be allowed to repopulate the area. If tillage is needed to prepare a seedbed, wait 7 days after applying this product before tilling.

ORNAMENTALS AND CHRISTMAS TREES

THIS PRODUCT IS NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY ON ORNAMENTALS AND CHRISTMAS TREES.

NOTE: Desirable plants may be protected from the spray solution by using shields or coverings made of cardboard or other impermeable material.

When applied as instructed for the conditions described for "NONCROP USES", this product controls undesirable vegetation listed on this label prior to planting, within and around greenhouses and shadehouses, and as a postdirected spray around established ornamentals and Christmas trees.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "Weeds Controlled" section of this label.

Where repeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year.

Site Preparation—Following preplant applications of this product, any ornamental or

Christmas tree species may be planted. Precautions should be taken to protect nontarget plants during site preparation applications.

Greenhouse/Shadehouse Use—This product may be used to control weeds listed on this label which are growing in greenhouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

Postdirected Spray—Use as a postdirected spray around established woody ornamental species or Christmas trees such as those listed below. Care must be exercised to avoid contact of spray, drift or mist with foliage of or green bark of established ornamental species.

Arborvitae

Thuja spp.

Azalea

Rhododendron spp.

Borwood

Buxus spp.

Crabapple

Malus spp.

Euonymus

Euonymus spp.

Fir

Abies spp.

Pseudotsuga spp.

Jojoba

Simmondsia chinensis

Hollies

Ilex spp.

Lilac

Syringa spp.

Magnolia

Magnolia spp.

Maple

Acer spp.

Oak

Quercus spp.

Privet

Ligustrum spp.

Pine

Pinus spp.

Spruce

Picea spp.

Yew

Taxus spp.

CUT STUMP TREATMENTS

Woody vegetation may be controlled by treating freshly cut stumps of trees and resprouts with this product. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut vegetation close to the soil surface. Apply a 50 to 100 percent solution of this product to the freshly cut surface immediately after cutting. Delays in application may result in reduced performance. For best results, applications should be made during periods of active growth and full leaf expansion.

When used according to directions for cut stump application, this product will CONTROL, PARTIALLY CONTROL or SUPPRESS many types of woody brush and tree species, some of which are listed below:

Alder

Alnus spp.

Eucalyptus

Eucalyptus spp.

Madrone

Arbutus menziesii

Oak

Quercus spp.

Reed, giant

Arundo donax

Saltcedar

Tamarisk spp.

Sweetgum

Liquidambar styraciflua

Tan Oak

Lithocarpus densiflorus

Willow

Salix spp.

INJECTION AND FRILL APPLICATIONS

Woody vegetation may be controlled by injection or frill application of this product. Apply this product using suitable equipment which must penetrate into the living tissue. Apply the equivalent of 1 ml of this product per each 2 to 3 inches of trunk diameter (DBH). This is best achieved by applying a 50 to 100 percent concentration of this material either to a continuous frill around the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying diluted material to a continuous frill or more closely spaced cuttings. Avoid application techniques that allow runoff to occur from frill or cut areas in species that exude sap freely after frills or cutting. In species such as this, make frill or cut at an oblique angle so as to produce a cupping effect and use undiluted material. For best results, application should be made during periods of active growth and after full leaf expansion.

This treatment WILL CONTROL the following woody species:

Oak	Sweetgum
<i>Quercus</i> spp.	<i>Liquidambar styraciflua</i>
Poplar	Sycamore
<i>Populus</i> spp.	<i>Platanus occidentalis</i>

This treatment WILL SUPPRESS the following woody species:

Black gum	Hickory
<i>Nyssa sylvatica</i>	<i>Carya</i> spp.
Dogwood	Maple, red
<i>Cornus</i> spp.	<i>Acer rubrum</i>

TURFGRASSES AND GRASSES FOR SEED PRODUCTION

PREPLANT AND RENOVATION

When applied as directed for "NONCROP USES", under conditions described, this product controls most existing vegetation prior to the planting or renovation of either turfgrasses or grass seed production areas.

For specific rates of application and instructions for control of various annual and perennial weeds, and woody brush and trees, see the "WEEDS CONTROLLED" section of this label.

For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses, such as bermudagrass, summer or fall applications provide best control.

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

TURFGRASSES

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth listed in the "WEEDS CONTROLLED" section of this label.

Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray.

Desirable turfgrasses may be planted following the above procedures.

GRASSES FOR SEED PRODUCTION

Apply this product to actively growing weeds at the stages of growth recommended in the "WEEDS CONTROLLED" section of this label prior to planting or renovation of turf or forage grass areas grown for seed production.

DO NOT feed or graze treated areas within 6 weeks after application.

ANNUAL WEED CONTROL IN DORMANT BERMUDAGRASS AND BAHIA GRASS TURF

When applied as directed for "NONCROP USES" under the conditions described, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant bermudagrass and bahiagrass turf. Refer to the rate table for Roundup alone under the "RELEASE OF BERMUDAGRASS AND BAHIA GRASS" section of this label for recommended rates and volumes on the species to be suppressed or controlled. Treat only when turf is dormant and prior to spring greenup. Spot treatments or broadcast applications of this product in excess of 16 fluid ounces per acre may result in injury or delayed greenup in highly maintained turfgrass areas; i.e., golf courses, lawns, etc. DO NOT APPLY TANK MIXTURES of this product plus Dost in highly maintained turfgrass areas.

RELEASE OF BERMUDAGRASS OR BAHIA GRASS

NOTE: Use only in areas where bermudagrass or bahiagrass are desirable ground covers and where some temporary injury or discoloration can be tolerated. Use tank mixtures of this product plus Dost only on railroads, highways, utility plant sites, or other right-of-way areas.

When applied as directed for "NONCROP USES" under the conditions described, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant bermudagrass or bahiagrass. This product may be tank-mixed with Dost as recommended for residual control. Make applications to dormant

bermudagrass or bahiagrass. Tank mixtures of this product plus Oust may delay greenup. To avoid delays in greenup and minimize injury, do not add more than 1 ounce per acre of Oust on bermudagrass or more than 0.5 ounce per acre on bahiagrass, or treat when these grasses are in a semi-dormant condition.

For best results on winter annuals, treat when plants are in an early growth stage (below 6 inches in height) after most have germinated. For best results on tall fescue, treat when fescue is in or beyond the 4 to 6-leaf stage.

WEEDS CONTROLLED

Rate recommendations for control or suppression of winter annuals and tall fescue are listed below.

Apply the recommended rates of this product alone or as a tank mixture in 10 to 25 gallons of water, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre.

For the best recommendation for the mixture of weeds within your geographic area, contact your Monsanto sales representative.

WEEDS CONTROLLED OR SUPPRESSED WITH Roundup ALONE*

NOTE: C = Control
S = Suppression

WEED SPECIES	Roundup® FLUID OZ/ACRE					
	8	12	16	24	32	64
Barley, little <i>Hordeum pusillum</i>	S	C	C	C	C	C
Bedstraw, catchweed <i>Galium aparine</i>	S	C	C	C	C	C
Bluegrass, annual <i>Poa annua</i>	S	C	C	C	C	C
Chenille <i>Chaerophyllum tainturieri</i>	S	C	C	C	C	C
Chickweed, common <i>Stellaria media</i>	S	C	C	C	C	C
Clover, crimson <i>Trifolium incarnatum</i>	•	S	S	C	C	C
Clover, large hop <i>Trifolium campestre</i>	•	S	S	C	C	C
Fescue, tall <i>Festuca arundinaceae</i>	•	•	•	•	S	S
Geranium, Carolina <i>Geranium carolinianum</i>	•	•	S	S	C	C
Henbit <i>Lamium amplexicaule</i>	•	S	C	C	C	C
Ryegrass, Italian <i>Lolium multiflorum</i>	•	•	S	C	C	C
Speedwell, corn <i>Veronica arvensis</i>	S	C	C	C	C	C
Vetch, common <i>Vicia sativa</i>	•	•	S	C	C	C

* These rates apply only to sites where an established competitive turf is present.

WEEDS CONTROLLED OR SUPPRESSED WITH Roundup PLUS OUST*

NOTE: C = Control
S = Suppression

WEED SPECIES	Roundup® + OUST							
	Roundup® (FL. OZ/A)		8		12		16	
	+ OUST (OZ/A)		1/4	1/4	1/4	1/4	1/4	1/4
Barley, little <i>Hordeum pusillum</i>			C	C	C	C	C	C
Bedstraw, catchweed <i>Galium aparine</i>			C	C	C	C	C	C

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	Roundup® (FL. OZ/A) +	Roundup® + OUST							
WEED SPECIES	OUST (OZ/A)	8	12	12	16	16	12	16	
		+	+	+	+	+	+	+	
		¼	¼	½	¾	¾	1	1	
Bluegrass, annual <i>Poa annua</i>		S	C	C	C	C	C	C	
Chervil <i>Chaerophyllum tainturieri</i>		C	C	C	C	C	C	C	
Chickweed, common <i>Stellaria media</i>		S	C	C	C	C	C	C	
Clover, crimson <i>Trifolium incarnatum</i>		S	S	S	S	C	C	C	
Clover, large top <i>Trifolium campestre</i>		•	•	S	S	S	C	C	
Fescue, tall <i>Festuca arundinaceae</i>		•	•	•	•	•	S	S	
Geranium, Carolina <i>Geranium carolinianum</i>		•	S	S	C	C	C	C	
Henbit <i>Lamium amplexicaule</i>		•	S	C	C	C	C	C	
Ryegrass, Italian <i>Lolium multiflorum</i>		•	S	S	C	C	C	C	
Speedwell, corn <i>Veronica arvensis</i>		S	C	C	C	C	C	C	
Vetch, common <i>Vicia sativa</i>		C	C	C	C	C	C	C	

* These rates or mixtures of rates apply only to sites where an established competitive turf is present.

RELEASE OF ACTIVELY GROWING BERMUDAGRASS

When applied as directed, this product will aid in the release of bermudagrass by providing control of annual species listed in the "WEEDS CONTROLLED" section of this and the Oust label, and suppression or partial control of certain perennial weeds.

For control or suppression of those annual species listed on this label, use 1 to 3 pints of this product as a broadcast spray in 10 to 25 gallons of spray solution per acre. Use the lower rate when treating annual weeds below 6 inches in height (or length of runner in annual vines). Use the higher rate as weeds increase in size or as they approach flower or seedhead formation.

Use the higher rate of this product for partial control of the following perennial species. Use the lower rates for suppression of growth. For best results, see the "Weeds Controlled" section of this label for proper stage of growth.

Bahiagrass <i>Paspalum notatum</i>	Johnsongrass* <i>Sorghum halepense</i>
Bluestem, silver <i>Andropogon saccharoides</i>	Trumpet creeper** <i>Campsis radicans</i>
Fescue, tall <i>Festuca arundinacea</i>	Vaseygrass <i>Paspalum urvillei</i>

* Control at the higher rates.

** Suppression at higher rates only.

This product may be tank-mixed with Oust. If tank-mixed, use no more than 1 to 2 pints per acre of this product with 1 to 2 ounces of Oust per acre.

Use the lower rates of both mixtures to control annual weeds below 6 inches in height (or runner length in annual vines) that are listed in the "WEEDS CONTROLLED" section of this booklet and the Oust label. Use the higher rates as annual weeds increase in size and approach the flower or seedhead stages.

Use the higher rates of this product to provide partial control of the following perennial weeds. Use the lower rates for suppression of growth.

Bahiagrass	Johnsongrass*
<i>Paspalum notatum</i>	<i>Sorghum halepense</i>
Bluestem, silver	Poorjoe**
<i>Andropogon saccharoides</i>	<i>Diodia teres</i>
Broomsedge	Trumpet creeper*
<i>Andropogon virginicus</i>	<i>Campsis radicans</i>
Dock, curly	Vaseygrass
<i>Rumex crispus</i>	<i>Paspalum unvillei</i>
Dogfennel	Vervain, blue
<i>Eupatorium capilliflorum</i>	<i>Verbena hastata</i>
Fescue, tall	
<i>Festuca arundinacea</i>	

*Suppression at higher rates only.

**Control at the higher rates.

Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment but regrowth will occur under moist conditions. Repeat applications in the same season are not recommended, since severe injury may result.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

COOL SEASON TURF GROWTH REGULATION

When applied as directed, this product will suppress growth and seedhead development of listed turf species in industrial sites.

This product is recommended for management of coarse turf on roadside rights-of-way or other industrial areas. Do not use on high-quality turf or other areas where some turf color changes cannot be tolerated. Slight turf discoloration may occur but turf will regreen and regrow under moist conditions as effects of this product wear off.

Apply 4 to 6 fluid ounces of this product per acre alone or in a recommended tank mixture. Spray volumes of 10 to 40 gallons per acre are recommended.

When using this product, mix 2 quarts of a nonionic surfactant per 100 gallons of spray solution.

This product can be used for growth and seedhead suppression of:

Tall Fescue
Smooth Brome

For best results, apply this product in a recommended tank mixture to actively growing turfgrasses after greenup in the spring of the year. For suppression of seedheads, applications must be made before boot-to-seedhead stage of development. Applications made from seedhead emergence until maturity may result in turf discoloration or injury.

After mowing or removal of seedheads, this product in a recommended tank mixture may also be used to suppress the growth of certain turfgrasses. Allow turf to recover from stress caused by heat, drought, or mowing before making applications. Applications made to turf under stress may increase the potential for discoloration or injury.

ANNUAL GRASSES

For growth suppression of some annual grasses such as annual ryegrass, wild barley and wild oats, apply 3 to 4 fluid ounces of this product in 10 to 40 gallons of spray solution per acre. Applications should be made when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments made after seedhead emergence may cause injury to the desired grasses.

TANK MIXTURES

For the following tank mixtures, consult each product label for weeds controlled and the correct stage of application. Do not treat turf under stress.

Tank mixtures plus 2,4-D Amine

For additional weed control benefits, up to 1 pound a.i. per acre of 2,4-D amine may be added to the following tank mixtures. Consult the label for 2,4-D amine for weeds controlled.

TALL FESCUE

Roundup plus Telar™

For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.5 ounce of Telar per acre.

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This tank mixture can also be applied after mowing or removal of tall fescue seedheads for turf growth suppression. Make only one of the above applications per growing season.

Roundup plus Oust

For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

Roundup plus Escort™

This tank mixture can be applied after mowing or removal of tall fescue seedheads for turf growth suppression and control or partial control of some annual weeds. Use up to 1/3 ounce of Escort per acre.

NOTE: This product is not registered for use with Escort in California.

SMOOTH BROME

Roundup plus Oust

For suppression of smooth brome growth and seedheads and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

BAHIA GRASS SEEDHEAD AND VEGETATIVE SUPPRESSION

When applied as directed in the indicated noncrop areas (roadsides, airports, golf course roughs, and plant sites), this product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with single applications and approximately 120 days with sequential applications.

Apply this product 1 to 2 weeks after full greenup of bahia grass or after the bahia grass has been mowed to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 fluid ounces per acre of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume may be made at approximately 45 day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than

2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product per acre plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces per acre plus nonionic surfactant may be made approximately 45 days after the last application.

A tank mixture of this product plus Oust may be applied only on roadsides for seedhead inhibition and vegetative suppression. Apply 6 fluid ounces per acre of this product plus 0.25 ounce per acre of Oust, plus 0.5 to 1 percent nonionic surfactant by total spray volume 1 to 2 weeks following an initial spring mowing. When using this product plus Oust for suppression of bahia grass, make only 1 application per year.

CROPPING SYSTEMS

When applied as directed for "CROPPING SYSTEMS", under the conditions described, this product controls annual and perennial weeds listed on this label, prior to the emergence of direct seeded crops or prior to transplanting of crops listed on this label.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for essential product performance information.

See the following "CROPPING SYSTEMS" sections for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS OR FRUIT OF DESIRABLE CROPS, PLANTS, TREES OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Except as otherwise specified on this label, repeat treatments must be made before the crop emerges in accordance with the instructions of this label.

Except as otherwise specified in a crop section of this label, the combined total of all treatments must not exceed 8 quarts per acre of this product per year.

Do not plant subsequent crops other than those on the label for 30 days following application.

Do not harvest or feed treated vegetation for 8 weeks following application. Following spot treatment or selective equipment use, allow 14 days before grazing domestic livestock or harvesting forage grasses and legumes.

ROW CROPS

CORN (ALL)*
COTTON*
PEANUTS
SORGHUM (MILO)*
SOYBEANS*
SUGAR CANE*

CEREAL GRAINS

BARLEY*
BUCKWHEAT*
MILLET (PEARL,
PROSO)*
OATS*
RICE**
RYE*
TRITICALE*
WHEAT (ALL)*
WILD RICE*

CITRUS

CALAMONDIN
CHIRONJA
CITRON
GRAPEFRUIT
KUMQUAT
LEMON
LIME
MANDARIN ORANGE
ORANGE (ALL)
PUMMELO
TANGELO
TANGERINE
TANGORS

BEANS (ALL)
BEET GREENS
BEETS (RED,SUGAR)
BROCCOLI (ALL)
BRUSSELS SPROUTS
CABBAGE (ALL)
CABBAGE, CHINESE
CANTALOUPE***
CARROT
CAULIFLOWER
CASABA MELON***
CELERY
CHARD, SWISS
CHICORY
COLLARDS
CRENSHAW MELON***
CUCUMBER***
EGGPLANT***
ENDIVE
GARLIC***
GOURDS***
GROUND CHERRY***
HONEYDEW MELON***
HONEY BALL MELON***
HORSERADISH
KALE
KOHLRABI
LEEK
LENTILS
LETTUCE
MANGO MELON***
MELONS (ALL)***
MUSKMELON***
MUSTARD GREENS
OKRA

TREE NUTS

ALMOND
BEECHNUT
BRAZIL NUT
BUTTERNUT
CASHEW
CHESTNUT
CHINQUAPIN
FILBERT (HAZELNUT)
HICKORY NUT
MACADAMIA
PECAN
PISTACHIO
WALNUT (BLACK,
ENGLISH)

VINE CROPS

GRAPES
KIWI FRUIT

TREE FRUITS

APPLE
APRICOTS
CHERRY (SWEET, SOUR)
LOQUAT
MAYHAW
NECTARINE
OLIVE
PEACH
PEAR
PLUM/PRUNE (ALL)
QUINCE

VEGETABLES

ARTICHOKE,
JERUSALEM
ASPARAGUS*

ONION
RAPE GREENS
PARSLEY
PARSNIPS
PEAS (ALL)
PEPPER (ALL)***
PERSIAN MELON***
POTATO (IRISH,SWEET)
PUMPKIN***
RADISH
RHUBARB
RUTABAGA
SPINACH (ALL)
SQUASH
(SUMMER,WINTER)***
TOMATILLO***
TOMATO***†
TURNIP
WATERCRESS***
WATERMELON***
YAMS

SMALL FRUITS AND BERRIES

BLACKBERRY
BLUEBERRY
BOYSENBERRY
CRANBERRY
CURRANT
DEWBERRY
ELDERBERRY
GOOSEBERRY
HUCKLEBERRY
LOGANBERRY
OLALLIEBERRY
RASPBERRY
(BLACK,RED)

FORAGE CROPS AND LEGUMES

ALFALFA*
 FORAGE GRASSES*
 FORAGE LEGUMES*

TROPICAL CROPS

ACEROLA
 ATEMOLYA
 AVOCADO
 BANANA (PLANTAINS)
 BREADFRUIT
 CANISTEL
 CARAMBOLA
 CHERIMOYA
 COCOA BEANS
 COFFEE
 DATES
 FIGS
 GENIP

GUAYA
 JABOTICABA
 JACKFRUIT
 LONGAN
 LYCHEE
 MANGO
 PAPAYA
 PASSION FRUIT
 PERSIMMONS
 PINEAPPLE****
 POMEGRANATE
 SAPODILLA
 SAPOTE (BLACK, MAMEY
 WHITE)
 SOURSOP
 SUGAR APPLE
 TAMARIND
 TEA

*Spot treatments may be applied in these crops.

**Do not treat rice fields or levees when the fields contain flood water.

***Apply only prior to planting. Allow at least 3 days between application and planting.

****Do not feed or graze treated pineapple forage following application.

†Use is restricted to direct seeded crops only.

When applying this product prior to transplanting crops into plastic mulch, care must be taken to remove residues of this product from the plastic prior to transplanting. Residues can be removed by 0.5 inch natural rainfall or by applying water via a sprinkler irrigation system.

Spot Treatment (Only those crops with "*" can be spot treated.)—Applications in growing crops must be made prior to heading of small grains and milo, initial pod set in soybeans, silking of corn, or boll opening on cotton.

For forage grasses and forage legumes see "SPOT TREATMENT" in the "PASTURES" section of "CROPPING SYSTEMS" in this label.

tion of "CROPPING SYSTEMS" in this label.

For dilution and rates of application using boom or hand-held equipment, see "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" and "WEEDS CONTROLLED" sections of this label.

NOTE: FOR FORAGE GRASSES AND FORAGE LEGUMES, NO MORE THAN ONE-TENTH OF ANY ACRE SHOULD BE TREATED AT ONE TIME. FOR ALL OTHER CROPS, DO NOT TREAT MORE THAN 10 PERCENT OF THE TOTAL FIELD AREA TO BE HARVESTED.

THE CROP RECEIVING SPRAY IN TREATED AREA WILL BE KILLED. TAKE CARE TO AVOID DRIFT OR SPRAY OUTSIDE TARGET AREA FOR THE SAME REASON.

Selective Equipment—This product may be applied through recirculating sprayers, shielded applicators or wiper applicators in cotton and soybeans. Shielded and wiper applicators may also be used in tree crops and grapes. Wiper applicators may be used in rutabagas, forage grasses and forage legumes, including pasture sites and grain sorghum (milo).

See the "SELECTIVE EQUIPMENT" part of the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for information on proper use and calibration of this equipment.

Allow at least the following time intervals between application and harvest:

Cotton, Soybeans	7 days
Apples, Atemolya, Avocado, Breadfruit, Canistel, Carambola, Cherry, Citrus, Grapes, Dates, Jaboticaba, Jackfruit, Longan, Lychee, Passion Fruit, Pear, Persimmons, Rutabagas, Sapodilla, Sapote, Soursop, Sugar Apple, Tamarind	14 days
Stone Fruit	17 days
Nut Crops (except Pistachio)	3 days
Pistachio Nuts	21 days
Sorghum (milo)*	40 days

* Do not use roller applicators. Do not feed or graze treated milo fodder. Do not ensile treated vegetation.

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ASPARAGUS

When applied as directed for "CROPPING SYSTEMS" under the conditions described, this product controls weeds listed on this label in asparagus.

For specific rates of applications and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

Prior to Crop Emergence—Apply this product prior to crop emergence for the control of emerged labeled annual and perennial weeds. DO NOT APPLY WITHIN A WEEK BEFORE THE FIRST SPEARS EMERGE.

Spot Treatment—Apply this product immediately after cutting, but prior to the emergence of new spears. Do not treat more than 10 percent of the total field area to be harvested. Do not harvest within 5 days of treatment.

Postharvest—Apply this product after the last harvest and all spears have been removed. If spears are allowed to regrow, delay application until lems have developed. Delayed treatments should be applied as directed or shielded spray in order to avoid contact of the spray with lems, stems or spears. Direct contact of the spray with the asparagus may result in serious crop injury.

NOTE: Select and use recommended types of spray equipment for postemergence postharvest applications. A directed spray is any application where the spray pattern is aligned in such a way as to avoid direct contact of the spray with the crop. A shielded spray is any application where a physical barrier is positioned and maintained between the spray and the crop to prevent contact of spray with the crop.

BERRIES AND SMALL FRUITS

For cranberries, apply after fruit set and no later than 30 days before harvest.

For other berries, apply as a preplant broadcast application, or as a directed spray or wiper application post-planting.

Wiper applicators may be used in cranberries in accordance with instructions in this section.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for essential product performance information.

See the "SELECTIVE EQUIPMENT" part of the "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for information on recommended use and calibration of this equipment.

Allow a minimum of 14 days between last application and harvest of small fruits and berries.

For Wick or other Wiper Applicators—Mix 1 gallon of this product in 4 gallons of water to prepare a 20 percent solution. Apply the solution to emerged weeds. Apply after cranberry fruit set and no later than 30 days before harvest.

In severe infestations, reduce equipment ground speed to ensure that adequate amounts of this product are wiped on the weeds. A second treatment in the opposite direction may be beneficial.

Do not permit herbicide solution to contact desirable vegetation, including green shoots, canes or foliage.

FALLOW AND REDUCED TILLAGE SYSTEMS

FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO SUPPLEMENTAL LABEL.

Use this product in fallow and reduced tillage systems for control of annual weeds prior to emergence of crops listed in this label. Refer to the "WEEDS CONTROLLED" section of this label for specific rates and instructions. This product may be applied using ground or aerial spray equipment. See the "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for instructions.

TANK MIXTURES

■ Roundup plus BANYEL plus NONIONIC SURFACTANT ■

■ Roundup plus 2,4-D plus NONIONIC SURFACTANT ■

■ Roundup plus GOAL™ plus NONIONIC SURFACTANT ■

DO NOT APPLY BANYEL OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA.

Applications of 2,4-D or Banvel must be made at least 7 days prior to planting corn.

The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed species. Some crop injury may occur if Banvel is applied within 45 days of planting. Refer to the Banvel and 2,4-D labels for cropping restrictions and other use instructions.

Roundup plus Goal Tank Mixtures

This product alone or in tank mixtures with Goal plus 0.5 to 1 percent nonionic surfactant by total spray volume will provide control of those weeds listed below.

Make applications when weeds are actively growing and at the recommended stages of growth. Avoid spraying when weeds are subject to moisture stress, when dust is on the foliage or when straw canopy covers the weeds.

Roundup® 12 fluid oz/acre		Roundup® 16 fluid oz/acre	
Wheat	18**	Annual grasses at left plus:	
Barley	12*	Ryegrass, annual	6*
Bluegrass, annual	6*	Chickweed	6*
Barleygrass	6*	Groundsel	6*
Rye	6*	Marestail	6*
		Rocket, London	6*
		Shepherdspurse	6*
		Crabgrass	12*
		Johnsongrass, seedling	12*
		Lambsquarters	12*
		Oats, wild	12*
		Pigweed, redroot	12*
		Mustards	12*

NOTE: Use 32 fluid ounces of this product per acre where heavy weed densities exist.

Roundup® 12 fluid oz/acre + GOAL** 2 to 4 fluid oz/acre		Roundup® 16 fluid oz/acre + GOAL** 2 to 4 fluid oz/acre	
Annual grasses above plus:		Annual weeds above plus:	
Cheeseweed, common	3*	Cheeseweed, common	6*
Chickweed	3*	Groundsel	6*
Groundsel	3*	Chickweed	12*
Rocket, London	6*	Rocket, London	12*
Shepherdspurse	6*	Shepherdspurse	12*

NOTE: Use 32 fluid ounces of this product per acre in mixtures with 2 to 4 fluid ounces of Goal per acre where heavy weed densities exist.

* Maximum height or length in inches.

** Use the higher rate of Goal when weeds approach maximum recommended height or stands are dense.

These recommended tank mixtures may be applied using ground or aerial spray equipment. Refer to the "WEEDS CONTROLLED" section of this label for specific rates and instructions.

ECOFARMING SYSTEMS

The recommendations made in this section are not registered for use in California.

The Ecofarming System consists of the following rotation: winter wheat, corn/sorghum, ecofallow.

Use the following tank mixtures for control of emerged annual weeds before planting corn or sorghum in the Ecofarming System.

■	Roundup at 16 to 20 fluid ounces per acre	■
	plus	
■	2,4-D at 0.375 to 0.5 pound a.i. per acre	■
	plus	
■	ATRAZINE at 0.75 to 1 pound a.i. per acre	■
	plus	
■	LASSO® at 2.5 to 3 quarts per acre	■

The above tank mixture should be applied in 28-0-0 or 32-0-0 liquid fertilizer carrier at 20 to 30 gallons per acre. The liquid fertilizer may be diluted with water to achieve the desired carrier volume.

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WEEDS CONTROLLED—The following weeds, up to a maximum height of 4 inches, will be controlled:

Brome, downy <i>Bromus tectorum</i>	Lettuce, prickly <i>Lactuca serriola</i>
Cheat <i>Bromus secalinus</i>	Pigweed, redroot <i>Amaranthus retroflexus</i>
Foxtail, green <i>Setaria viridis</i>	Thistle, Russian <i>Salsola kali</i>
Foxtail, yellow <i>Setaria lutescens</i>	Wheat, volunteer <i>Triticum aestivum</i>
Kochia* <i>Kochia scoparia</i>	

*For improved control of kochia, add 4 fluid ounces per acre (0.125 pound a.i. per acre) of Banvel to the above tank mixture.

Risk of crop injury from 2,4-D or Banvel can be reduced by applying this treatment 7 to 14 days before planting.

Refer to the label booklet for Lasso herbicide for preemergence weed control achieved by this tank mixture.

Refer to the specific product labels for crop rotation restrictions and cautionary statements for all products used in these tank mixtures.

AID TO TILLAGE

This product, when used in conjunction with preplant tillage practices, will provide control of downy brome, cheat, volunteer wheat, lanky mustard and foxtail. Apply 8 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make applications when weeds are actively growing and before they are 6 inches in height. Application must be followed by conventional tillage practices no later than 15 days after treatment and before regrowth occurs. Allow at least 1 day after application before tillage. Tank mixtures with residual herbicides may result in reduced performance.

PASTURES

Apply this product prior to planting forage grasses and legumes.

Pasture or Hay Crop Renovation—When applied as a broadcast spray, this product controls the annual and perennial weeds listed in this label prior to planting forage grasses or legumes. Remove domestic livestock before application and wait 8 weeks after application before grazing or harvesting.

Spot Treatment—When applied as a spot treatment as recommended, this product controls annual and perennial weeds listed in this label which are growing in pastures, forage grasses and forage legumes composed of bahiagrass, bermudagrass, bluegrass, brome, fescue, orchardgrass, ryegrass, timothy, wheatgrass, alfalfa or clover.

Wiper Application—When applied as directed, this product controls or suppresses the weeds listed under "WIPER APPLICATORS" in the "SELECTIVE EQUIPMENT" section of this label.

For spot treatment and wiper application, apply in areas where the movement of domestic livestock can be controlled. No more than one-tenth of any acre should be treated at one time. Further applications may be made in the same area at 30-day intervals. Remove domestic livestock before application and wait 14 days after application before grazing livestock or harvesting.

SUGARCANE

When applied as directed for "CROPPING SYSTEMS", under the conditions described, this product controls those emerged annual and perennial weeds listed on this label growing in or around sugarcane or in fields to be planted to sugarcane. This product will also control undesirable sugarcane.

NOTE: Where repeat treatments are necessary, do not exceed a total of 10.6 quarts of this product per acre per year. Do not apply to vegetation in or around ditches, canals or ponds containing water to be used for irrigation.

Broadcast Treatment—Apply this product in 10 to 40 gallons of water per acre on emerged weeds growing in fields to be planted to sugarcane.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

For removal of last stubble or ratoon cane, apply 4 to 5 quarts of this product in 10 to 40 gallons of water per acre to new growth having at least 7 or more new leaves. Allow 7 or more days after application before tillage.

Spot treatment in or Around Sugarcane Fields—For dilution and rates of application using hand-held equipment, see "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" and "WEEDS CONTROLLED" sections of this label.

For control of volunteer or diseased sugarcane, make a 1 percent solution of this product in water and spray to wet the foliage of vegetation to be controlled.

NOTE: When spraying volunteer or diseased sugarcane, the plants should have at least 7 new leaves.

Avoid spray contact with healthy cane plants since severe damage or destruction may result.

Do not feed or graze treated sugarcane forage following application.

CONSERVATION TILLAGE, MINIMUM TILLAGE AND NO-TILL SYSTEMS CORN AND SOYBEANS Tank Mixtures

The recommendations made in this section are not registered for use in California.

When applied as recommended under the conditions described, the tank mixtures listed in this section control many emerged weeds, and give preemergence control of many annual weeds where corn or soybeans will be planted directly into a cover crop, established sod or in previous crop residues.

Refer to specific product labels for crop rotation restrictions and cautionary statements of all products used in these tank mixtures. For mixing instructions, see the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.

Apply these tank mixtures in 10 to 20 gallons of water or 10 to 60 gallons of nitrogen solution per acre before, during or after planting. Do not apply these mixtures after crop emergence.

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution. The addition of 1 to 2 percent dry ammonium sulfate by weight may increase the performance of this product.

NOTE: When using these tank mixtures, do not exceed 4 quarts of this product per acre.

CORN

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

LISSO®/ALACHLOR	ATRAZINE
LARIAT®	CYANAZINE
BULLET®	SIMAZINE
DUAL™	PROWL™
BICEPT™	MICRO-TECH®
PARTNER®	

For improved burndown, this product may be tank-mixed with 2,4-D or dicamba. Applications of 2,4-D or dicamba must be made at least 7 days prior to planting corn. See the "WEEDS CONTROLLED" section for specific rate information.

SOYBEANS

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

CANOPY™	LDROX™ PLUS
COMMAND™	PREVIEW™
DUAL™	PROWL™
GEMINI™	TURBO™
LISSO®/ALACHLOR	SCEPTER™
LEXONE™	SENCOR™
LINURON	SQUADRON™
PURSUIT™	PURSUIT PLUS™
PARTNER®	MICRO-TECH®

For improved burndown, this product may be tank-mixed with the following herbicides:

2,4-DB
2,4-D *

*See the label for 2,4-D for intervals between application and planting.

CORN AND SOYBEANS

Annual Weeds—For difficult-to-control weeds such as fall panicum, barnyardgrass, crabgrass, shattercane and broadleaf signalgrass up to 2 inches tall, and Pennsylvania smartweed up to 6 inches tall, apply this product at 2 pints per acre in these tank mixtures. For other labeled annual weeds, apply 1 to 1.5 pints of this product per acre when weeds are less than 6 inches tall, and 2 to 3 pints when weeds are over 6 inches tall. For a complete list of annual weeds controlled, see the "WEEDS CONTROLLED" section of this label.

Perennial Weeds—At normal application times in minimum tillage systems, perennial weeds may not be at the proper stage of growth for control. See the "WEEDS CONTROLLED" section of this label for the proper stage of growth for perennial weeds.

Use of 2 to 4 quarts of this product per acre in the tank mixtures mentioned above, under these conditions provides top kill and reduces competition from many emerged perennial grass and broadleaf weeds. For emerged perennial weeds controlled, see the "WEEDS CONTROLLED" section of this label.

To obtain the desired stage of growth, it may be necessary to apply this product alone in the late summer or fall and then follow with a label-approved, seedling weed control program at planting.

USE OF THESE TANK MIXTURES FOR BERMUDAGRASS OR JOHNSONGRASS CONTROL IN MINIMUM TILLAGE SYSTEMS IS NOT RECOMMENDED. For bermudagrass control, follow the instructions under "CONTROL OF PERENNIAL WEEDS" section of this label and then use a label-approved, seedling weed control program in a minimum tillage or conventional tillage system. For johnsongrass control, follow instructions under "CONTROL OF PERENNIAL WEEDS" section of this label, and then use a label-approved, seedling weed control program with conventional tillage.

PREHARVEST APPLICATIONS

When applied as directed under the conditions described, this product controls annual and perennial weeds listed on this label prior to the harvest of cotton and soybeans.

SOYBEANS

Apply after pods have set and lost all green color. Allow a minimum of 7 days between application and harvest of soybeans. Care should be taken to avoid excessive seed shatter loss due to ground application equipment.

Do not graze or harvest treated crop for livestock feed within 25 days of last preharvest application.

DO NOT APPLY MORE THAN 6 QUARTS PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS.

DO NOT APPLY MORE THAN 1 QUART PER ACRE OF THIS PRODUCT BY AIR.

For specific rates and application instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of the Roundup label booklet.

This product may be applied by both ground and aerial application equipment. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of the Roundup label booklet for instructions for ground and aerial applications.

NOTE: It is not recommended that soybeans grown for seed be treated because a reduction in germination or vigor may occur.

The use of this product for preharvest soybeans is not registered in California.

COTTON

Broadcast Applications—This product may be applied using either aerial or ground spray equipment. For ground applications with broadcast equipment, apply this product in 10 to 20 gallons of water per acre. For aerial applications, apply this product in 3 to 10 gallons of water per acre.

FOR AERIAL APPLICATIONS, REFER TO THE "APPLICATION EQUIPMENT AND TECHNIQUES" AND "AERIAL EQUIPMENT" SECTIONS OF THIS LABEL.

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FOR AERIAL APPLICATIONS IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR.

Weed Control—For specific rates of application and instructions for control of various annual and perennial weeds for this product used alone or in the following tank mixtures, see the "WEEDS CONTROLLED" section of this label.

To control Johnsongrass using multiple-directed or broadcast over-the-top spray equipment, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure complete coverage.

For partial control of field bindweed, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre. Apply when bindweed is actively growing and 12 inches or greater in length. Reduced performance may result if bindweed is under drought stress.

TANK MIXTURES

- Roundup plus DEF™ 6 ■
- Roundup plus Folex™ ■
- Roundup plus Prep™ ■
- Roundup plus Prep plus DEF 6 or Folex ■

When applied as recommended under the conditions described, these tank mixtures control annual and perennial weeds listed on this label prior to the harvest of cotton. For application guidelines, precautions and use-rates, refer to the DEF, Folex and Prep labels.

This product when tank mixed with DEF 6 or Folex defoliant may provide enhancement of cotton leaf drop and regrowth inhibition.

Timing of Application—Apply this product or these tank mixtures for preharvest weed control after 60 percent of the cotton bolls have opened.

NOTE: DO NOT APPLY TO CROPS GROWN FOR SEED. Allow a minimum of 7 days between application and harvest. Do not feed or graze treated cotton forage or hay following pre-harvest applications.

TREE AND VINE CROPS

This product is recommended for weed control in established groves, vineyards, and orchards, or for site preparation prior to transplanting crops listed in this section. Applications may be made with boom equipment, CDA, shielded sprayers, hand-held and high-volume wands, lances, orchard guns, or with wiper applicator equipment, except as directed in this section. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for specific information on use of equipment.

When applying this product, refer to the "WEEDS CONTROLLED" section of this label and to specific recommendations in this section for rates to be used.

NOTE

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual weed control. For subsequent weed control, use repeated applications of this product. Do not apply more than 10.6 quarts of this product per acre per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

AVOID PAINTING OUT STUMPS WITH THIS PRODUCT AS INJURY RESULTING FROM ROOT GRAFTING MAY OCCUR IN ADJACENT TREES.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

For specific rates of applications and instructions, see the "WEEDS CONTROLLED" section of this label, and to specific recommendations which follow.

MIDDLES MANAGEMENT

FOR ANNUAL WEEDS IN MIDDLES BETWEEN
ROWS OF TREE AND VINE CROPS

For citrus crops treat uniformly between trees.

Roundup

Roundup plus GOAL™

This product alone or in mixtures with Goal will control or suppress the annual weeds listed below.

Apply the recommended rates of this product, either alone or in mixtures with Goal, plus 0.5 to 1 percent nonionic surfactant by spray volume in 3 to 10 gallons of water per acre. Apply when weeds are actively growing and less than 6 inches in height or diameter. If weeds are under drought stress, irrigate prior to application. Reduced control may occur if weeds have been mowed prior to application. Up to 48 fluid ounces per acre of this product may be used to control weeds, which have been mowed, are stressed, or are growing in dense populations.

WEED SPECIES	MAXIMUM HEIGHT/DIAMETER (INCHES)	RATE PER ACRE	
		ROUNDUP® (FLUID OUNCES)	GOAL (FLUID OUNCES)
Barley <i>Hordeum vulgare</i>	6	8	—
Bluegrass, annual <i>Poa annua</i>			
Barnyardgrass <i>Echinochloa crus-galli</i>	6	12	—
Chickweed, common <i>Stellaria media</i>			
Red Maids <i>Catandrinia ciliata</i>			

Crabgrass <i>Digitaria spp.</i>	6	16	OR	—
Flabiate, hairy <i>Conyza bonariensis</i>		15 to 32	+	4 to 16**
Groundsel, common <i>Senecio vulgaris</i>				
Jonglerica <i>Echinochloa colonum</i>				
Lambsquarters, common <i>Chenopodium album</i>				
Pigweed, redroot <i>Amaranthus retrofractus</i>				
Rocket, London <i>Sisymbrium irio</i>				
Ryegrass, common <i>Lolium multiflorum</i>				
Shepherdspurse <i>Capsella bursa-pastoris</i>				
Sowthistle, annual <i>Sonchus oleraceus</i>				
Cheeseweed, common <i>Mahoe spp.</i>	3	12 to 32	+	4 to 16
Cheeseweed, common <i>Mahoe spp.</i>	6	16 to 32	+	4 to 16
Filices* <i>Erodium spp.</i>				
Horseweed/Marastal <i>Conyza canadensis</i>				

WEED SPECIES	MAXIMUM HEIGHT/DIAMETER (INCHES)	RATE PER ACRE	
		ROUNDUP* (FLUID OUNCES)	GOAL (FLUID OUNCES)
Nettle, stinging <i>Urtica dioica</i>	6	16 to 32	+ 4 to 16
Purselane, common* <i>Purulaca oleracea</i>			

* Suppression only.

** The mixture of this product plus Goal is recommended when weeds are stressed or growing in dense populations.

STRIPS

FOR ANNUAL AND PERENNIAL WEEDS IN STRIPS OF TREE AND VINE CROPS

TANK MIXTURES WITH RESIDUAL HERBICIDES

When applied as a tank mixture, this product provides control of the emerged annual weeds and control or suppression of emerged perennial weeds listed in this label. The following residual herbicides will provide preemergence control of those weeds listed in the individual product labels.

- Roundup plus GOAL™ 1.6E ■
- Roundup plus KARDEX™ DF ■
- Roundup plus KROVART™ I ■
- Roundup plus KROVART™ II ■
- Roundup plus SIMAZINE, PRINCEP CALIBER™ 90 ■
- Roundup plus SIMAZINE 4L ■
- Roundup plus SIMAZINE 80W ■

- Roundup plus SOLICAM™ 80DF ■
- Roundup plus SURFLAN™ AS ■
- Roundup plus SURFLAN 75W ■
- Roundup plus SIMAZINE (80W, or 4L, or PRINCEP CALIBER 90) plus SURFLAN (AS or 75W) ■
- Roundup plus GOAL (1.6E) plus SURFLAN (AS or 75W) ■
- Roundup plus GOAL (1.6E) plus SIMAZINE (80W, or 4L, or PRINCEP CALIBER 90) ■
- Roundup plus GOAL (1.6E) plus SURFLAN (AS or 75W) plus SIMAZINE (80W, 4L, or PRINCEP CALIBER 90) ■

Do not apply these tank mixtures in Puerto Rico.

When tank-mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution.

Refer to the individual product labels for specific crops, rates, geographical restrictions and precautionary statements.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the labels of all products.

RECOMMENDED RATES

Annual Weeds—Apply 1 to 5 quarts per acre of this product in these tank mixtures. Use rates at the higher end of the recommended range when weeds are stressed, growing in dense populations or are greater than 12 inches tall.

Perennial Weeds—Apply 1 pint to 5 quarts per acre of this product in these tank mixtures to control or suppress perennial weeds. Follow the recommendations in the "WEEDS CONTROLLED" section of this label for stage of growth and application rates for specific perennial weeds.

- Roundup plus GOAL plus SIMAZINE/SURFLAN ■
- This product plus low rates of Goal in 3-way or 4-way mixtures with simazine and/or Surflan will provide postemergence control of the weeds listed below.

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Refer to the individual simazine and Surtlan labels for preemergence rates, weeds controlled, precautionary statements and other important information.

Apply these tank mixtures in 3 to 40 gallons of water. Add 0.5 to 1 percent nonionic surfactant by total spray volume to the spray solution.

Apply 1 to 5 quarts per acre of this product plus 4 to 48 fluid ounces per acre of Goal plus labeled rates of simazine and/or Surtlan to control the following weeds:

Barley, wild <i>Hordeum leporinum</i>	Horseweed/Marestail <i>Conyza canadensis</i>
Bluegrass, annual <i>Poa annua</i>	Nettle, stinging <i>Urtica dioica</i>
Cheeseweed, common <i>Malva spp.</i>	Pineappleweed <i>Matricaria matricariodes</i>
Chickweed, common <i>Stellaria media</i>	Rocket, London <i>Sisymbrium irio</i>
Filaree* <i>Erodium spp.</i>	Shepherdspurse <i>Capsella bursa-pastoris</i>
Fleabane, hairy <i>Conyza bonariensis</i>	Sowthistle, annual <i>Sonchus oleraceus</i>
Groundsel, common <i>Senecio vulgaris</i>	

* Use a minimum of 1.5 quarts of this product in these mixtures.

NOTE: This recommendation does not preclude the use of Goal in these mixtures at higher, labeled rates for preemergence weed control.

■ PERENNIAL GRASS SUPPRESSION ORCHARD FLOORS ■

When applied as directed, this product will suppress vegetative growth as indicated below.

Bahiagrass

This product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with a single application and approximately 120 days with sequential applications. Apply this product 1 to 2 weeks

after full green-up or after mowing to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus nonionic surfactant may be made at approximately 45-day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces may be made approximately 45 days after the last application.

Bermudagrass

For burndown, apply 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre. Use 1 quart of this product in 3 to 20 gallons of water per acre east of the Rocky Mountains. Use 1 to 2 quarts of this product in 3 to 10 gallons of water per acre west of the Rocky Mountains. Use this treatment only if reduction of the bermudagrass stand can be tolerated. When burndown is required prior to harvest, allow at least 21 days to ensure sufficient time for burndown to occur.

Suppression only (east of the Rocky Mountains)—Apply 6 to 16 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Rates of 6 to 10 fluid ounces of this product plus nonionic surfactant should be used in shaded conditions or where a lesser degree of suppression is desired. Sequential applications may be made when regrowth occurs and bermudagrass injury and stand reduction can be tolerated.

Suppression only (west of the Rocky Mountains)—Apply 16 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre to bermudagrass up to 6 inches in height and no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Sequential applications may be made when regrowth occurs and bermudagrass injury and stand reduction can be tolerated.

Cool Season Grass Covers

For suppression of tall fescue, fine fescue, orchardgrass and quackgrass, apply 8 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. For best suppression, add ammonium sulfate to the

spray solution at a rate of 2 percent by weight or 17 pounds per 100 gallons of spray solution.

For suppression of Kentucky bluegrass covers, apply 6 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant. Do not add ammonium sulfate.

For best results, mow cool-season grass covers in the spring to even their height and apply the recommended rate of this product 3 to 4 days after mowing. Avoid treating cool season grass covers under poor growing conditions, such as drought stress (drip irrigation), disease or insect damage.

LOW VOLUME APPLICATION (FLORIDA AND TEXAS)

For burndown or control of the weeds listed, apply the recommended rates of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 30 gallons of water per acre. Where weed foliage is dense, use 10 to 30 gallons of water per acre.

Annual Weeds

Goatweed—Apply 2 to 3 quarts per acre of this product plus 17 pounds of ammonium sulfate per 100 gallons of water plus 0.5 to 1 percent nonionic surfactant by total spray volume. Apply in 20 to 30 gallons of water per acre when plants are actively growing. Use 2 quarts per acre when plants are less than 8 inches tall and 3 quarts per acre when plants are greater than 8 inches. If goatweed is greater than 8 inches tall, the addition of Krovax II or Karmex may improve control. Use labeled rates for these residual products.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the Krovax II and Karmex labels.

Perennial Weeds

Apply when weeds are actively growing and at the growth stages listed in the "PERENNIAL WEEDS CONTROLLED" section of this label. If perennial weeds are mowed, allow weeds to regrow to the recommended stage of growth.

S = Suppression
PC = Partial control
B = Burndown
C = Control

WEED SPECIES	Roundup® RATE PER ACRE			
	1 qt	2 qts	3 qts	5 qts
Bermudagrass	B	•	PC	C
Gumagrass				
Texas and Florida Ridge	B	C	C	C
Florida Flatwoods	•	B	C	C
Paragrass	B	C	C	C
Torpedograss	S	•	PC	C

TREE CROPS

Citrus*: calamondin, chinquapin, citron, grapefruit, kumquat, lemon, lime, mandarin orange, orange, pummelo, tangelo, tangerine, tangors.

Nuts*: almond, beechnut, Brazil nut, butternut, cashew, chestnuts, chinquapin, filbert, hazel nut, hickory nut, macadamia, pecan, pistachio, walnut.

Pome Fruit*: apple, loquat, mayhaw, pear, quince.

Stone Fruit*: apricots, cherries, nectarines, olives, peaches, plums/prunes.

For cherries, any application equipment listed in this section may be used in all states.

For citron and olives, apply as a directed spray only.

Any application equipment listed in this section may be used in apricots, nectarines, peaches and plums/prunes growing in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Texas, Utah and Washington, except for peaches grown in the states specified in the following paragraph. In all other states use wiper equipment only.

For PEACHES grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee only, apply with a shielded boom sprayer or shielded wiper applicator, which prevents any contact of this product with the foliage or bark of trees. Apply no later than 90 days after first bloom. Applications made after this time may result in severe damage. Remove suckers and low-hanging limbs at least 10

days prior to application. Avoid applications near trees with recent pruning wounds or other mechanical injury. Apply only near trees which have been planted in the orchard for 2 or more years. EXTREME CARE MUST BE TAKEN TO ENSURE NO PART OF THE PEACH TREE IS CONTACTED.

Tropical Fruit: acerola*, atemoya*, avocado*, banana* (plantains)****, breadfruit*, canistel*, carambola*, cherimoya*, cocoa beans*, coffee****, dates*, figs*, genip*, guava*****, jaboticaba*, jackfruit*, longan*, lychee*, mango*, mayhaw*, papaya*****, passion fruit*, persimmons*, pomegranate*, sapodilla*, sapote*, soursoap*, sugar apple*, tamarind*, tea*. In coffee and banana, delay applications 3 months after transplanting to allow the new coffee or banana plant to become established.

NOTE:

- * Allow a minimum of 14 days between last application and harvest.
- ** Allow a minimum of 3 days between last application and harvest of these crops, except for pistachio nuts. For pistachio nuts, allow a minimum of 21 days between last application and harvest.
- *** Allow a minimum of 17 days between last application and harvest.
- **** Allow a minimum of 28 days between last application and harvest.
- ***** Allow a minimum of 1 day between last application and harvest.

VINE CROPS

Kiwi Fruit

Grapes: Any variety of table, wine or raisin grape may be treated with any equipment listed in this section.

Applications should not be made when green shoots, canes, or foliage are in the spray zone.

Allow a minimum of 14 days between last application and harvest.

In the northeast and Great Lakes regions, applications must be made prior to the end of bloom stage of grapes to avoid injury.

* Bodel, Lasso, Micro-Tech, Partner and Lariat are registered trademarks of Monsanto Company.

TM Dust, Mavari, Escort, Telar, Canopy, Bladez, Gemini, Lexone, Loxa Plus, Preview, and Karmex are trademarks of E. I. duPont de Nemours and Company.

TM Dual, Bacro, Princep and Caliber are trademarks of Ciba-Geigy Corporation.

TM Surtlan is a trademark of Elanco Products Company.

TM Barvel and Schem are trademarks of Sandoz, Inc.

TM Ronstar, Folax and Prep are trademarks of Rhône-Poulenc, Inc.

TM Goal is a trademark of Rohm and Haas Company.

TM Sencor and Torpo are trademarks of Bayer AG.

TM Proxel, Pursuit, Pursuit Plus, Scepter and Squelcon are trademarks of American Cyanamid Company.

TM Command is a trademark of FMC Corporation.

TM DEF is a trademark of Mobay Chemical Company.

TM Macrofol is a trademark of Union Carbide Agricultural Products, Inc.

TM Thru-Vahe is a trademark of Walden Spences, Inc.

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This product is protected by U.S. Patent No. 4,405,531. Other patents pending. No license granted under any non-U.S. patent(s).

EPA Reg. No. 524-445

895.07-000 45/53

In case of an emergency involving this product,
Call Collect, day or night, (314) 694-4000.

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MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167 U.S.A.

This product is protected by U.S. Patent No. 4,405,531. Other patents pending. No license granted under any non-U.S. patent(s).

EPA Reg. No. 524-445

898.07-000.45/53

In case of an emergency involving this product,
Call Collect, day or night, (314) 694-4000.

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NOT REVIEWED
In Accordance with PR Notice 82-7.
Based on Draft Labeling Dated

12/17/92

2

1/24/94

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI, 63167 U.S.A.

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

May 11, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Submission of Final Printed Label Booklets

Dear Sir:

Monsanto is submitting final printed labels of a Roundup® herbicide label booklet for your files. The directions for use language was approved by the Agency on December 17, 1992, while the statements required by the Worker Protection Standard were accepted by the Agency on January 14, 1994. This label is also identical to a final printed label booklet that was submitted to the Agency on December 21, 1993, except that the physical size of this booklet is larger.

Enclosed are five (5) copies of the label (version 1994-1: 898.07-000.45/53).


If you have any questions regarding this submission, please contact Dr. Russ Schneider or me.

Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider

(A) 	United States Environmental Protection Agency Office of Pesticide Programs (H7505C) Washington, DC 20460	<input type="checkbox"/> Registration	OPP Identifier Number 207622
		<input checked="" type="checkbox"/> Amendment	
Application for Pesticide:		<input checked="" type="checkbox"/> Other	

Section I

1. Company/Product Number 524-445	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Roundup® Herbicide	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section II

<input type="checkbox"/> Amendment - Explain below	<input checked="" type="checkbox"/> Final printed labels in response to Agency letter dated 12/17/92 and 1/14/94
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

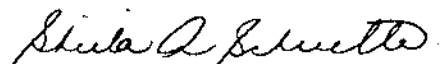
Section III

1. Material This Product Will Be Packaged In:			
Child-Resistant Packaging <input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2. Type of Container <input type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
* Certification must be submitted.		If "Yes," Unit Package wgt. No. per container	If "Yes," Package wgt. No. per container
3. Location of Net Contents Information <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container		4. Size(s) of Retail Container various	
5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input checked="" type="checkbox"/> On Labeling accompanying product		6. Manner In Which Label Is Affixed To Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled <input checked="" type="checkbox"/> Other (vinyl glued)	

Section IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Dr. Russell P. Schneider	Title Agricultural Regulation Director	Telephone No. (Include Area Code) (202) 783-2460

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped): 179
2. Signature 	3. Title Manager, Regulatory Affairs	
4. Typed Name Sheila A. Schuetz, Ph.D.	5. Date May 11, 1994	

PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];
2. Confidential Statement of Formula (EPA Form 8570-4);
3. Formulator's Exemption Statement (EPA Form 8570-27);
4. Five copies of draft labeling;
5. Three copies of any data submitted;
6. Authorization letter where applicable;
7. Matrices where applicable.

Submission of Labeling: Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission.

Submission of Data: Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

1. **Company/Product Number** - Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
2. **EPA Product Manager** - If known, fill in the name and PM number of the EPA Product Manager.
3. **Proposed Classification** - Specify the proposed classification of this product.
4. **Product Name** - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
5. **Name and Address of Applicant** - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
6. **Expedited Review** - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. **Subject of submission** - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. **Type of Packaging** - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.
2. **Type of Retail Container** - Indicate type of container in which product will be marketed.
3. **Location of Net Contents** - Specify the net contents of all retail containers for your product.
4. **Size(s) of Retail Container** - Specify the net contents of all retail containers for your product.
5. **Location of Use Directions** - Indicate the location of the use directions for your product.
6. **Manner in which label is affixed to product** - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "me-too," reregistration, etc.

- 1-5. Self-explanatory.
6. EPA Use Only.

MAY 18 1994

Dr. Sheila A. Schuette
Monsanto Company
700 14th St. N.W., Suite 1100
Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Add Use on Coconuts
Roundup Herbicide
EPA Reg. No. 524-445
Your submission dated May 4, 1994

~~The amendment referred to above, submitted in con-~~
~~nection with registration under FIFRA sec. 3(c)(7)(A), is~~
acceptable provided that you:

1. Submit and/or cited all data or other material required for registration/reregistration of your product under FIFRA sec. 3(c)(5) or FIFRA section 4 when the Agency requires all registrants of similar products to submit such data.

2. Submit five (5) copies of your final printed labeling incorporating the following changes before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Sincerely yours,

Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (H7505C)

enclosure

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(A) 	United States Environmental Protection Agency Office of Pesticide Programs (H7505C) Washington, DC 20460	<input type="checkbox"/> Registration <input checked="" type="checkbox"/> Amendment <input type="checkbox"/> Other	OPP Identifier Number <div style="font-size: 1.5em;">207618</div>
	Application for Pesticide:		

Section I

1. Company/Product Number 524-445	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Roundup® Herbicide	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005 <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____

Section II

<input checked="" type="checkbox"/> Amendment - Explain below <input type="checkbox"/> Resubmission in response to Agency letter dated _____ <input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____ <input type="checkbox"/> "Me Too" Application. <input type="checkbox"/> Other - explain below.
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Supplemental label for use in Coconut.

Section III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____	
* Certification must be submitted.		If "Yes," Unit Package wgt. No. per container	If "Yes," Package wgt. No. per container		
3. Location of Net Contents Information <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container		4. Size(s) of Retail Container various		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input checked="" type="checkbox"/> On Labeling accompanying product	
6. Manner In Which Label is Affixed To Product <input type="checkbox"/> Lithograph <input checked="" type="checkbox"/> Other (vinyl glued) <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled					

Section IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name Dr. Russell P. Schneider	Title Agricultural Regulation Director	Telephone No. (Include Area Code) (202) 783-2460	
I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			6. Date Application Received (Stamped)
2. Signature 	3. Title Manager, Regulatory Affairs		RBV
4. Typed Name Sheila A. Schuette, Ph.D.	5. Date May 4, 1994		

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3. **Proposed Classification** - Specify the proposed classification of this product.
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5. **Name and Address of Applicant** - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
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- 1-5. Self-explanatory.
6. EPA Use Only.

Handwritten signature
18-



United States Environmental Protection Agency
Washington, DC 20460

Certification with Respect to Citation of Data

Form Approved
OMB No. 2070-0060
Approval Expires 11-30-93

Applicants Name and Address

Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, DC 20005

EPA File Symbol/Registration Number

524-445

Product Name

Roundup® Herbicide

Date of Application

May 4, 1994

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of approval of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)
2. I certify that, for each study cited in support of this application for registration that is an exclusive use study,

☒ I am the original submitter*; or

☐ I have obtained the written permission of the original data submitter to cite that study*
3. I certify that, for each study cited in support of this application for registration that is not an exclusive use study:

a. ☒ I am the original data submitter*; or

☐ I have obtained the written permission of the original data submitter to cite that study*; or

b. ☐ I have notified in writing the companies that have submitted data I have cited to support this application and have offered to: (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)

☐ All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)

☐ Those companies that have submitted the studies which I have cited (Selective method*).

* A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the cite-all method.)

Signature

Name and Title

Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs

Date

May 4, 1994

General Offer to Pay: I hereby offer and agree to pay compensation to other persons, with regard to the approval of this application, to the extent required.

Signature

Name and Title

Date

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Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

May 4, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Supplemental Label for Use in Coconut

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of a supplemental label for use of Roundup herbicide in coconut. A tolerance for glyphosate on coconut was established on September 16, 1987 (52 FR 39410; attached) but the crop has not yet been added to the label.

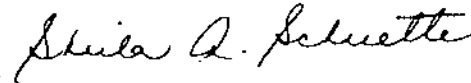
In the Glyphosate Reregistration Eligibility Decision (RED) Document, the Agency proposes to revoke the tolerance on coconut since there are currently no registered uses of glyphosate for this crop. Rather than lose the tolerance for this minor crop, Monsanto is submitting the attached label.

Monsanto requests that the Agency approve and stamp the enclosed supplemental label. The residue data supporting this use can be found in Accession No. 247004; a complete list of glyphosate data can be found in MRID 43077000, which was submitted to the Agency on December 16, 1993. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed.

May 4, 1994
Page 2

If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,

A handwritten signature in cursive script that reads "Sheila A. Schuette".

Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider
L.L. Gingerich
D.M. Fee-White

§ 3.1804(d). Where any part of the plot or interment expenses has been paid or assumed by a State, any agency or political subdivision of a State, or the employer of the deceased veteran, only the difference between the total amount of such expenses and the amount paid or assumed by any of these agencies or organizations, not to exceed the statutory plot or interment allowance, will be authorized.

[Authority: 38 U.S.C. 903(b)]

(d)

(3) *Amount of the allowance.* A State, or an agency or political subdivision of a State entitled to payment under this paragraph shall be paid the maximum statutory amount as a plot or interment allowance without regard to the actual cost of the plot or interment.

[Authority: 38 U.S.C. 903(b)]

12. In § 3.1512 paragraph (e)(2)(ii) is revised and paragraph (e)(2)(iii) is added to read as follows:

§ 3.1512 *Monetary allowance in lieu of a Government-furnished headstone or marker.*

(e)

(2)

(ii) The average actual cost, as determined by the VA, of headstones and markers furnished at Government expense for the fiscal year preceding the fiscal year in which the non-Government marker was purchased or the services for adding the veteran's identifying information on an existing headstone or marker were purchased.

(iii) The average actual cost of Government-furnished headstones and markers during any fiscal year is determined by dividing the sum of the VA's costs during that fiscal year for procurement, transportation, Monument Service and miscellaneous administration, inspection and support staff by the total number of headstones and markers procured by the VA during that fiscal year and rounding to the nearest whole-dollar amount. The resulting average actual cost is published at the end of each fiscal year in the "Notices" section of the Federal Register.

[Authority: 38 U.S.C. 906 (d)]

[FR Doc. 87-21334 Filed 9-15-87; 8:45 am]

BILLING CODE 5320-01-M

38 CFR Part 38

Increase in Maximum Permissible Interest Rates on Guaranteed Manufactured Home Loans, Home and Condominium Loans, and Home Improvement Loans; Correction

AGENCY: Veterans Administration.

ACTION: Final regulation; correction.

SUMMARY: In the Federal Register of Thursday, September 10, 1987 (52 FR 34218) the Veterans Administration (VA) published increases in maximum interest rates on guaranteed manufactured home units loans, lot loans, and combination manufactured home unit and lot loans. An increase appearing in 38 CFR 36.4311(a) was inadvertently omitted. This document is to correct the text of § 36.4311(a).

EFFECTIVE DATE: September 8, 1987.

FOR FURTHER INFORMATION CONTACT: George Moerman, Loan Guaranty Service (264), Department of Veterans Benefits, Veterans Administration, 810 Vermont Avenue NW., Washington, DC 20420 (202) 233-3042.

Dated: September 11, 1987.

Priscilla B. Carey,

Chief, Directives Management Division.

On page 34218 of the Federal Register of September 10, 1987, Volume 52, § 36.4311(a) is correctly revised to read as follows:

§ 36.4311 *Interest rates.*

(a) Excepting loans guaranteed or insured pursuant to guaranty or insurance commitments issued by the VA which specify an interest rate in excess of 10½ per centum per annum, effective September 8, 1987, the interest rate on any home manufactured home/lot loan guaranteed under 38 U.S.C. 1810, or condominium loan other than a graduated payment mortgage loan, guaranteed or insured wholly or in part on or after such a date may not exceed 10½ per centum per annum on the unpaid principal balance. (38 U.S.C. 1803(c)(1))

[FR Doc. 87-21337 Filed 9-15-87; 8:45 am]

BILLING CODE 5320-01-M

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 180

[PP 2F2680/P911; FFL-3250-4]

Pesticide Tolerance for Glyphosate

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This rule establishes a tolerance for the combined residues of the herbicide glyphosate [N-(phosphonomethyl)glycine] and its metabolite aminomethylphosphonic acid (AMPA) in or on coconut at 0.1 part per million (ppm). The regulation was requested by Monsanto Co. and establishes the maximum permissible level for residues of the herbicide in or on coconut.

EFFECTIVE DATE: September 16, 1987.

ADDRESS: Written objections may be submitted to the: Hearing Clerk (A-110), Environmental Protection Agency, Room 3708, 401 M Street, SW., Washington, DC 20460.

FOR FURTHER INFORMATION CONTACT: By mail:

Robert J. Taylor, Product Manager (PM)
25, Registration Division (TS-767C),
Office of Pesticide Programs,
Environmental Protection Agency, 401
M Street, SW., Washington, DC 20460.
Office location and telephone number:
Room 412, CM # 2, 1921 Jefferson
Davis Highway, Arlington, VA 22202.
(703)-557-1800.

SUPPLEMENTARY INFORMATION: EPA issued a notice, published in the Federal Register of June 23, 1982 (47 FR 27126), which announced that Monsanto Co., 1101 17th Street, NW., Washington, DC 20036, had submitted a pesticide petition, PP 2F2080, to EPA proposing the establishment of a tolerance for combined residues of the herbicide glyphosate [N-(phosphonomethyl)glycine] and its metabolite aminomethylphosphonic acid (AMPA) in or on the raw agricultural commodity copra at 1.0 ppm. Food additive tolerances were proposed under food additive petition (FAP) 2H5339 for the combined residues of the herbicide and its metabolite on coconut oil, desiccated coconut, and copra meal at 0.1 ppm.

There were no comments received in response to the notice of filing.

The petitioner subsequently amended the petition to propose the establishment of a tolerance for the combined residues of the herbicide glyphosate and its metabolite aminomethylphosphonic acid in or on the raw agricultural commodity (RAC) coconut at 0.1 ppm. The food additive tolerances on coconut oil, desiccated coconut, and copra meal were withdrawn.

The data submitted in the petition and other relevant material have been evaluated. The data evaluated include a 2-year oncogenicity study in mice fed

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dosages of 0, 150, 750, and 4,500 milligrams/kilogram/day (mg/kg/day); a chronic feeding/ oncogenicity study in rats fed dosages of 0, 3, 10, and 31 mg/kg/day with no oncogenic effects observed under the conditions of the study at dose levels up to and including 31 mg/kg/day (highest dose tested (HDT)) and a systemic NOEL greater than 31 mg/kg/day; a 1-year chronic feeding study in dogs fed dosage levels of 0, 20, 100, and 500 mg/kg/day with a NOEL of 500 mg/kg/day; a teratology study in rats fed dosage levels of 0, 300, 1,000, and 3,500 mg/kg/day with no teratogenic effects occurring up to and including 3,500 mg/kg/day (HDT); maternal and fetotoxic NOELs of 1,000 mg/kg/day; a teratology study in rabbits fed dosage levels of 0, 75, 175, and 350 mg/kg/day with no teratogenic effects occurring up to and including 350 mg/kg/day (HDT); a maternal NOEL of 175 mg/kg/day, and a fetotoxic NOEL of 350 mg/kg/day (HDT); a three-generation reproduction study in rats fed dosage levels of 0, 3, 10, and 30 mg/kg/day with a NOEL of 10 mg/kg/day; a mutagenicity test—chromosomal aberration *in vitro* (no aberrations in Chinese hamster ovary cells were caused with and without S-9 activation); a mutagenicity test—DNA repair in rat hepatocytes (negative); a mutagenicity test—*in vivo* bone marrow cytogenetic in rats (negative); a mutagenicity test—rec-assay with *B. subtilis* (negative); a mutagenicity test—reverse mutation with *S. typhimurium* (negative); a mutagenicity (Ames) test with *S. typhimurium* (negative); and a dominant lethal mutagenicity test in mice (negative).

The acceptable daily intake (ADI) based on the three-generation rat reproduction study (NOEL of 10 mg/kg/day) and using a hundredfold safety factor is calculated to be 0.1 mg/kg/day. The theoretical maximum residue contribution (TMRC) for published tolerances and unpublished but approved tolerances is 0.0047 mg/kg/day. The current action will contribute 0.000001 mg/kg/day to the TMRC and will not increase the percentage of the ADI utilized. Published tolerances utilize 4.65 percent of the ADI.

Desirable data lacking are a repeat of the mouse and rat oncogenicity studies. There are currently no actions pending against the continued registration of this pesticide. No detectable residues of *N*-nitrosoglyphosate, a contaminant of glyphosate, are expected to be present in the commodities for which the tolerance is sought. The oncogenic potential of glyphosate is not fully

understood. Because of the equivocal (uncertain) nature of the oncogenic response in mice, the Agency referred the issue to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Science Advisory Panel (SAP) for a "Weight-of-Evidence" classification. After reviewing all available evidence, the SAP proposed that glyphosate be classified as a "Class D Oncogen" or having "inadequate animal evidence of oncogenicity," and that there be a Data Call-In for further studies in rats and/or mice to clarify unresolved questions. After rereview of all available information, the Agency decided to classify glyphosate as a "Class D Oncogen" and also to request a repeat of the mouse oncogenicity study. Also, because of the large difference between the high dose tested in the rat and mouse oncogenicity studies, the rat oncogenicity study was rereviewed. The rereview indicated that a maximum tolerated dose (MTD) may not have been reached in that study. Therefore, the Agency decided to also request a repeat of the rat oncogenicity study at doses high enough to read an MTD. The Agency's policy has been to issue new use registrations in which the resulting change in TMRC is less than 1 percent; however, any significant new use registrations will be handled on a case-by-case basis and will not be issued until issues in the Glyphosate Registration Standard have been resolved. Monsanto Co. has been notified of these conclusions and deficiencies by the Glyphosate Registration Standard dated June 30, 1986.

The nature of the residue is adequately understood, and an adequate analytical method (gas chromatography with a phosphorous-specific flame photometric detector) is available for enforcement purposes. Existing tolerances will accommodate residues occurring in meat, fat, and meat byproducts of cattle, horses, hogs, sheep, and goats and milk, poultry, or eggs resulting from this use.

Based on the information considered by the Agency, it is concluded that the tolerance established by amending 40 CFR Part 180 will protect the public health. Therefore, the tolerance is established as set forth below.

Any person adversely affected by this regulation may, within 30 days after the date of publication in the Federal Register, file written objections with the Hearing Clerk, Environmental Protection Agency, Room M-3708 (A-110), 401 M Street, SW., Washington, DC 20480. Such objections should be submitted in

quintuplicate and specify the provisions of the regulations deemed objectionable and the grounds for the objections. If a hearing is requested, the objections must state the issues for the hearing. A hearing will be granted if the objections are legally sufficient to justify the relief sought.

The Office of Management and Budget (OMB) has exempted this regulation from OMB requirements of Executive Order 12291 pursuant to section 8(b) of that Order.

Pursuant to the requirements of the Regulatory Flexibility Act (Pub. L. 98-354, 94 Stat. 1164, 5 U.S.C. 610 through 612), the Administrator has determined that regulations establishing new tolerances or raising tolerance levels or establishing exemptions from tolerance requirements do not have a significant economic impact on a substantial number of small entities. A certification statement to this effect was published in the Federal Register of May 4, 1981 (46 FR 24950).

(Sec. 408(d)(2), 68 Stat. 512 (21 U.S.C. 345a(d)(2))

List of Subjects in 40 CFR Part 180

Administrative practice and procedure, Agricultural commodities, Pesticides and pests.

Dated: September 1, 1987.

Douglas D. Campbell,

Director, Office of Pesticide Programs.

Therefore, 40 CFR Part 180 is amended follows:

PART 180—[AMENDED]

1. The authority citation for Part 180 continues to read as follows:

Authority: 21 U.S.C. 346a.

2. In § 180.364, paragraph (a) is amended by adding and alphabetically inserting the listing for coconut, to read as follows:

§ 180.364 Glyphosate; tolerance for residues.

(a) ***

Commodity	Tolerance (ppm)
Coconut	0.1

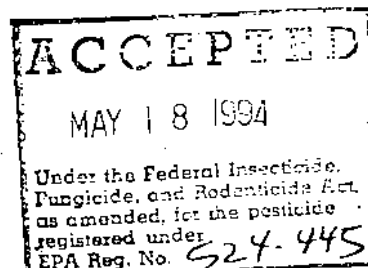
SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.

ROUNDUP®
Herbicide by Monsanto

EPA Reg. No. 524-445



ROUNDUP HERBICIDE FOR USE IN COCONUTS

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night (314) 694-4000.

®Roundup is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup herbicide for essential product performance information.

RECOMMENDATIONS

This product may be applied to control annual and perennial weeds listed on this label in established plantings of coconut and for site preparation prior to transplanting coconut trees.

Applications may be made with boom equipment, CDA, shielded sprayers, hand-held and high-volume wands, lances, orchard guns, or with wiper equipment.

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EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT OR OTHER PARTS OF TREES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

AVOID PAINTING OUT STUMPS WITH THIS PRODUCT AS INJURY RESULTING FROM ROOT GRAFTING MAY OCCUR IN ADJACENT TREES.

Read the "Limit of Warranty and Liability" in the label booklet for Roundup herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

©Monsanto Company 1994

MAP

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

MAY 19 1994

Dr. Sheila A. Schuette
Monsanto Company
700 14th St. N.W., Suite 1100
Washington, D.C. 20005

Dear Dr. Schuette:

Subject: Add Use on Salsify
Roundup Herbicide
EPA Reg. No. 524-445

Your submission dated May 4, 1994

The amendment referred to above, submitted in connection with registration under FIFRA sec. 3(c)(7)(A), is acceptable provided that you:

1. Submit and/or cited all data or other material required for registration/reregistration of your product under FIFRA sec. 3(c)(5) or FIFRA section 4 when the Agency requires all registrants of similar products to submit such data.

2. Submit five (5) copies of your final printed labeling incorporating the following changes before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Sincerely yours,

Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (H7505C)

enclosure

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Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

May 4, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Supplemental Label for Use in Salsify

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of a supplemental label for use of Roundup herbicide in salsify. A tolerance for glyphosate on salsify was established on March 29, 1989 (54 FR 12911; attached) but the crop has not yet been added to the label.

In the Glyphosate Reregistration Eligibility Decision (RED) Document, the Agency proposes to revoke the tolerance on salsify since there are currently no registered uses of glyphosate for this crop. Rather than lose the tolerance for this minor crop, Monsanto is submitting the attached label.

Monsanto requests that the Agency approve and stamp the enclosed supplemental label. A list of glyphosate data supporting this application can be found in MRID 43077000, which was submitted to the Agency on December 16, 1993. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed.

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May 4, 1994
Page 2

If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider
L.L. Gingerich
D.M. Fee-White

Federal Building, Boston, MA 02203.
(617) 565-3250; FTS 835-3250.

SUPPLEMENTARY INFORMATION: The States of Connecticut, New Hampshire, and Rhode Island were delegated authority for the General Provisions of the NSPS and NESHAPs standards and various Subparts of 40 CFR Parts 60 and 61 in letters from EPA dated September 30, 1982; the Commonwealth of Massachusetts was delegated this authority in a similar letter dated June 25, 1982. These letters detailed the conditions of each delegation, and thereby established a mechanism of automatic delegation of newly promulgated standards when specifically requested by the States. In addition, the delegation agreements, contained in those letters, provide that authority over future revisions to previously delegated standards will automatically be delegated to the State agencies. In accordance with this mechanism, requests for delegation were submitted to EPA and subsequently granted. The purpose of these delegations is to shift primary program responsibility for the newly promulgated Subparts of 40 CFR Parts 60 and 61 from EPA to State governments. Some States do not have full authority over the programs; limitations are noted where appropriate.

Delegations for each State are listed below:

State of Connecticut

Limitations: None, full authority delegated.

Delegations: Subpart of 40 CFR Part 60 as follows: BBB (Rubber Tire Manufacturing), effective November 17, 1988, TTT (Surface Coating of Plastic Parts for Business Machines), effective November 17, 1988.

State of Massachusetts

Limitations: None, full authority delegated.

Delegations: Subparts of 40 CFR Part 81 as follows: N (Inorganic Arsenic Emissions from Glass Manufacturing Plants), effective November 17, 1988.

State of New Hampshire

Limitations: None, full authority delegated.

Delegations: Subpart of 40 CFR Part 60 as follows: BBB (Rubber Tire Manufacturing), effective December 12, 1988, TTT (Surface Coating of Plastic Parts for Business Machines), effective December 12, 1988.

State of Rhode Island

Limitations: Administrative delegation only.

Delegations: Subpart of 40 CFR Part 60 as follows: BBB (Rubber Tire Manufacturing), effective February 15, 1989, TTT (Surface Coating of Plastic Parts for Business Machines), effective February 15, 1989.

Effective immediately, all applications, reports, and other correspondence required under these NSPS and NESHAPs standards should be sent to the above State addresses, as well as to the EPA.

The Office of Management and Budget has exempted this rule from the requirements of section 3 of Executive Order 12291.

Authority: Secs. 111(c) and 112(d) of the Clean Air Act, 42 U.S.C. 7411(c) and 7412(d).

List of Subjects in 40 CFR Parts 60 and 61

Air pollution control, Arsenic-glass manufacturing, Plastic parts for business machines, Rubber tire manufacturing.

Date: March 3, 1989.

Paul Keough,

Acting Regional Administrator, Region I.

[FR Doc. 89-7420 Filed 3-28-89; 8:45 am]

BILLING CODE 5560-50-M

40 CFR Part 180

[PP 8E3676/R1015; FRL-3544-8]

Pesticide Tolerances for Glyphosate

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This rule establishes a tolerance for the combined residues of the herbicide glyphosate and its metabolite in or on the raw agricultural commodity crop group bulb vegetables. This regulation to establish a maximum permissible level for residues of the herbicide in or on the crop group commodities was requested in a petition submitted by the Interregional Research Project No. 4 (IR-4).

EFFECTIVE DATE: March 29, 1989.

ADDRESS: Written objections, identified by the document control number, [PP 8E3676/R1015], may be submitted to: Public Docket and Freedom of Information Section, Environmental Protection Agency, Room 3708, 401 M Street SW., Washington, DC 20460.

FOR FURTHER INFORMATION CONTACT: By mail: Hoyt Jamerson, Emergency Response and Minor Use Section, Registration Division (TS-787C), Environmental Protection Agency, 401 M Street SW., Washington, DC 20460. Office location and telephone number: Room 716C, CM #2, 1921 Jefferson Davis Highway, Arlington, VA 22202, (703)-557-2310.

SUPPLEMENTARY INFORMATION: EPA issued a proposed rule, published in the Federal Register of February 8, 1989 (54 FR 8151), in which it was announced that the Interregional Research Project No. 4 (IR-4), New Jersey Agricultural Experiment Station, P.O. Box 231, Rutgers University, New Brunswick, NJ 08903, had submitted pesticide petition (PP) 8E3676 to EPA on behalf of Dr. Robert H. Kupelian, National Director, IR-4 Project, and the Agricultural Experiment Stations of California, Florida, Michigan, and New York.

The petition requested that the Administrator, pursuant to section 408(e) of the Federal Food, Drug, and Cosmetic Act, propose the establishment of a tolerance for the combined residues of the herbicide glyphosate (*N*-(phosphonomethyl) glycine), and its metabolite aminomethylphosphonic acid (AMPA) in or on the raw agricultural commodity onions at 0.2 part per million (ppm). The petition was later amended to propose a tolerance for residues of glyphosate at 0.2 ppm in or on commodities of the bulb vegetable crop group, which consists of the raw agricultural commodities garlic, leeks, onions (green and dry bulb), and shallots.

The tolerance for the bulb vegetable crop group replaces, in part, the existing glyphosate tolerance for root crop vegetables at 0.2 ppm. The root crop vegetable group consists of the raw agricultural commodities garlic, leeks, onions, and shallots, as well as beets, carrots, chickory, horseradish, Jerusalem artichokes, parsnips, potatoes, radish, rutabagas, salsify, sugarbeets, sweet potatoes, turnips, and yams.

The term "root crop vegetables" is a crop group designation that was used prior to the revision of 40 CFR 180.34(f), the Crop Group Regulations, which was published in the Federal Register of June 29, 1983 (48 FR 29855). Establishment of the tolerance for bulb vegetables allows the deletion of the existing glyphosate tolerance for root crop vegetables. Glyphosate tolerances for the remaining raw agricultural commodities for the root crop vegetable crop group (that do not belong to the bulb vegetable crop group) are retained by listing individual tolerances at 0.2 ppm for the following commodities: beets, carrots, chickory, horseradish, Jerusalem artichokes, parsnips, potatoes, radishes, rutabagas, salsify, sugar beets, sweet potatoes, turnips, and yams.

There were no comments or requests for referral to an advisory committee received in response to the proposed rule.

IR-4

Please note

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The data submitted in the petition and all other relevant material have been evaluated and discussed in the proposed rule. Based on the data and information considered, the Agency concludes that the tolerances will protect the public health. Therefore, the tolerances are established as set forth below.

Any person adversely affected by this regulation may, within 30 days after publication of this document in the Federal Register, file written objections with the Hearing Clerk, at the address given above. Such objections should specify the provisions of the regulation deemed objectionable and the grounds for the objections. A hearing will be granted if the objections are supported by grounds legally sufficient to justify the relief sought.

The Office of Management and Budget has exempted this rule from the requirements of section 3 of Executive Order 12291.

Pursuant to the requirements of the Regulatory Flexibility Act (Pub. L. 96-354, 84 Stat. 1164, 5 U.S.C. 601-612), the Administrator has determined that regulations establishing new tolerances or raising tolerance levels or establishing exemptions from tolerance requirements do not have a significant economic impact on a substantial number of small entities. A certification statement to this effect was published in the Federal Register of May 4, 1981 (48 FR 24950).

List of Subjects in 40 CFR Part 180

Administrative practice and procedure, Agricultural commodities, Pesticides and pests, Reporting and recordkeeping requirements.

Dated: March 15, 1989.

Douglas D. Campt,

Director, Office of Pesticide Programs.

Therefore, 40 CFR Part 180 is amended as follows:

PART 180—(AMENDED)

1. The authority citation for Part 180 continues to read as follows:

Authority: 21 U.S.C. 346a.

2. Section 180.364 is amended by removing the existing entry for root crop vegetable group and by adding and alphabetically inserting the commodity crop group bulb vegetables and the raw agricultural commodities beets, carrots, chickory, horseradish, Jerusalem artichokes, parsnips, potatoes, radishes, rutabagas, salsify, sugar beets, sweet

potatoes, turnips, and yams, to read as follows:

§ 180.364 Glyphosate; tolerances for residues.

(a) . . .

Commodities	Parts per million
Artichokes, Jerusalem	0.2
Beets	0.2
Beets, sugar	0.2
Carrots	0.2
Chickory	0.2
Horseradish	0.2
Parsnips	0.2
Potatoes	0.2
Radishes	0.2
Rutabagas	0.2
Salsify	0.2
Sweet potatoes	0.2
Turnips	0.2
Vegetables, bulb	0.2
Yams	0.2

[FR Doc. 89-7421 Filed 3-28-89; 8:45 am]

BILLING CODE 6560-50-M

40 CFR Part 372

[OPTS-400013A; FRL-3493-9]

Melamine; Toxic Chemical Reporting; Community Right-To-Know

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: EPA is deleting melamine from the list of toxic chemicals under section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1988 (SARA). Title III of SARA is also referred to as the Emergency Planning and Community Right-to-Know Act. By promulgating this rule, EPA is relieving facilities of their obligation to report releases of melamine that occur during the 1988 calendar year, and releases that will occur in the future. This relief applies only to reporting requirements under section 313 of Title III of SARA.

DATE: This rule is effective March 29, 1989.

FOR FURTHER INFORMATION CONTACT: Robert Israel, Acting Petition Coordinator, Emergency Planning and

Community Right-to-Know Hotline, Environmental Protection Agency, 401 M Street, SW., Mail Stop OS-120, Washington, DC 20460. Toll free: 800-535-0202 in Washington, DC and Alaska, (202) 479-2449.


SUPPLEMENTARY INFORMATION

I. Description of Petition and Regulatory History

The Agency received a section 313(e) petition to delete melamine, CAS No. 108-78-1, from the list of toxic chemicals in 40 CFR 372.65. The petition from Melamine Chemicals, Inc. was received on October 7, 1987, and at the request of the submitter, the statutory timeframe for response was suspended for 69 days. After reviewing the petition, EPA published the proposed rule to grant the petition in the Federal Register of June 20, 1988 (53 FR 23128). After reviewing the petition and additional related information, EPA concluded that melamine did not meet the listing criteria related to acute human health effects, chronic health effects, or environmental toxicity. These criteria for listing chemicals are in section 313(d) of Title III of SARA. It is the Agency's determination that available data do not demonstrate that melamine causes or can reasonably be anticipated to cause significant adverse health or environmental effects. This determination is consistent with EPA's prior determination under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) that the oncogenic risk posed by melamine, the major metabolite of the insect growth regulator cyromazine, is nonexistent or, at worst, extremely low (50 FR 20373). While release to the environment is possible, EPA has estimated that typical emissions will not cause exposures of concern. The proposed rule contains additional information on the petition process under section 313 of Title III of SARA, as well as, a detailed summary of the Agency's review of the petition.

EPA received two comments concurring with the proposed rule to delete melamine. The comments were from American Cyanamid Company and Browning-Ferris Industries. Based upon evaluation of the petition, available toxicity and exposure information, and the comments, EPA affirms its determination that melamine does not meet any of the criteria listed in section 313(d). Therefore, EPA is deleting melamine from the list of chemicals subject to reporting under section 313 of Title III of SARA.

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(A) 	United States Environmental Protection Agency Office of Pesticide Programs (H7505C) Washington, DC 20460	<input type="checkbox"/> Registration	OPP Identifier Number 207619
		<input checked="" type="checkbox"/> Amendment	
Application for Pesticide:		<input type="checkbox"/> Other	

Section I

1. Company/Product Number 524-445	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Roundup® Herbicide	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, DC 20005 <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____

Section II

<input checked="" type="checkbox"/> Amendment - Explain below	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Supplemental label for use in Salsify


Section III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Metal	<input checked="" type="checkbox"/> Plastic
				<input type="checkbox"/> Glass	<input type="checkbox"/> Paper
* Certification must be submitted.				<input type="checkbox"/> Other (Specify) _____	
3. Location of Net Contents Information <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container		4. Size(s) of Retail Container various		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input checked="" type="checkbox"/> On Labeling accompanying product	
6. Manner In Which Label Is Affixed To Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input checked="" type="checkbox"/> Other (vinyl glued)			

Section IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Dr. Russell P. Schneider	Title Agricultural Regulation Director	Telephone No. (Include Area Code) (202) 733-2460

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			6. Date Application Received (Stamped) 146
2. Signature 	3. Title Manager, Regulatory Affairs		
4. Typed Name Sheila A. Schuette, Ph.D.	5. Date May 4, 1994		

PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];
2. Confidential Statement of Formula (EPA Form 8570-4);
3. Formulator's Exemption Statement (EPA Form 8570-27);
4. Five copies of draft labeling;
5. Three copies of any data submitted;
6. Authorization letter where applicable;
7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission.

Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

1. **Company/Product Number** - Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
2. **EPA Product Manager** - If known, fill in the name and PM number of the EPA Product Manager.
3. **Proposed Classification** - Specify the proposed classification of this product.
4. **Product Name** - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
5. **Name and Address of Applicant** - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
6. **Expedited Review** - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. **Subject of submission** - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. **Type of Packaging** - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.
2. **Type of Retail Container** - Indicate type of container in which product will be marketed.
3. **Location of Net Contents** - Specify the net contents of all retail containers for your product.
4. **Size(s) of Retail Container** - Specify the net contents of all retail containers for your product.
5. **Location of Use Directions** - Indicate the location of the use directions for your product.
6. **Manner in which label is affixed to product** - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "me-too," reregistration, etc.

- 1-5. Self-explanatory.
6. EPA Use Only.

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Certification with Respect to Citation of Data

United States Environmental Protection Agency
Washington, DC 20460

Form Approved
OMB No. 2070-0060
Approval Expires 11-30-93

Applicants Name and Address

Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, DC 20005

EPA File Symbol/Registration Number

524-445

Product Name

Roundup® Herbicide

Date of Application

May 4, 1994

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of approval of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)
2. I certify that, for each study cited in support of this application for registration that is an exclusive use study,
 - ☒ I am the original submitter*; or
 - ☐ I have obtained the written permission of the original data submitter to cite that study*
3. I certify that, for each study cited in support of this application for registration that is not an exclusive use study:
 - a. ☒ I am the original data submitter*; or
 - ☐ I have obtained the written permission of the original data submitter to cite that study*; or
 - b. ☐ I have notified in writing the companies that have submitted data I have cited to support this application and have offered to:
 - (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and
 - (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)
 - ☐ All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)
 - ☐ Those companies that have submitted the studies which I have cited (Selective method*).

* A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the cite-all method.)

Signature

Name and Title

Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs

Date

May 4, 1994

General Offer to Pay: I hereby offer and agree to pay compensation to other persons, with regard to the approval of this application, to the extent required.

Signature

Name and Title

Date

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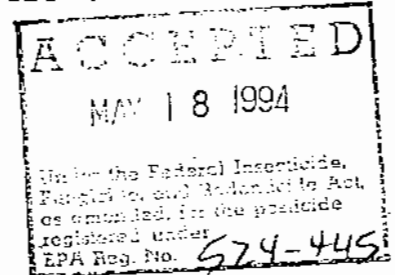
SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.

ROUNDUP®
Herbicide by Monsanto

EPA Reg. No. 524-445



ROUNDUP HERBICIDE FOR SALSIFY

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night (314) 694-4000.

*Roundup is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup herbicide for essential product performance information.

RECOMMENDATIONS

This product may be used to control annual and perennial weeds listed on this label prior to the emergence of salsify.

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See the "WEEDS CONTROLLED" section of the label booklet for Roundup herbicide for specific rates and stages of growth for the weed species present at the time of application.

Read the "Limit of Warranty and Liability" in the label booklet for Roundup herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once

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MAP

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

200

2-28-94

Roundup (R)
Herbicide by Monsanto

Complete Directions for Use

EPA Reg. No. 524-445

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

(R) Roundup is a registered trademark of Monsanto Company.

1994-X

A-000.01

Read each of these sections of this label for essential product performance information.

USE THESE CONVENIENT SECTION MARKERS.

GENERAL INFORMATION

MIXING, ADDITIVES AND APPLICATION

INSTRUCTIONS

WEEDS CONTROLLED

NONCROP USES

CROPPING SYSTEMS

MINIMUM TILLAGE

TREE AND VINE CROPS

Read the entire label before using this product.

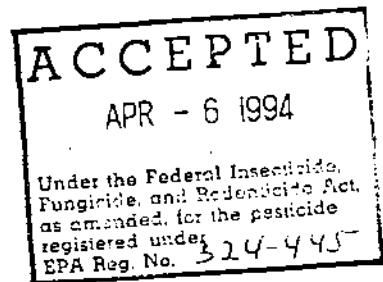
Use only according to label instructions.

Read "'LIMIT OF WARRANTY AND LIABILITY'" before buying or using. If terms are not acceptable, return at once unopened.

REFORMULATION IS PROHIBITED. SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

LIMIT OF WARRANTY AND LIABILITY

~~(Not applicable to consumer applications applied by the homeowner for noncommercial purposes as permitted by the supplemental labeling for 1-quart containers.)~~



This Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

Buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

(INDEX PAGES)

PRECAUTIONARY STATEMENTS

Hazards to
Humans and Domestic Animals

Keep out of reach of children.

WARNING! AVISO!

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY.
HARMFUL IF SWALLOWED OR INHALED.

Do not get in eyes or on clothing.

~~Wear goggles or face shield.~~

Avoid breathing vapor or spray mist.

~~Wash thoroughly with soap and water after handling.~~

~~Remove contaminated clothing and wash before reuse.~~

FIRST AID: IF IN EYES, immediately hold eyelids open and flush with plenty of water for at least 15 minutes. Get medical attention.

IF INHALED, Remove individual to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

IF SWALLOWED, This product will cause gastrointestinal tract irritation. Immediately dilute by swallowing water or milk. Get medical attention. **NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.**

Personal Protective Equipment

[REDACTED]

[REDACTED]

User Safety Recommendations:

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

ACTIVE INGREDIENT:

*Glyphosate, N-(phosphonomethyl)
glycine, in the form of its
isopropylamine salt.....

41.0%

INERT INGREDIENTS:.....

59.0%

100.0%

*Contains 480 grams per litre or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per litre or 3 pounds per U.S. gallon of the acid, glyphosate.

This product is protected by U.S. Patent No. 4,405,531. Other patents pending. No license granted under any non-U.S. patent(s).

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

Agricultural Use Requirements

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: coveralls, waterproof gloves, shoes plus socks, and protective eyewear.

Non-Agricultural Use Requirements

Keep people and pets off treated areas until spray solution has dried to prevent transfer of this product onto desirable vegetation.

For more product information, call toll-free 1-800-332-3111.

Storage and Disposal

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

See container label for STORAGE AND DISPOSAL instructions.

GENERAL INFORMATION

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT EXCEPT UNDER CONDITIONS AS SPECIFIED WITHIN THIS LABEL.

This product, a water soluble liquid, mixes readily with water to be applied as a foliar spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field-type sprayers after dilution and thorough mixing with water in accordance with label instructions.

This product moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds may not occur for 7 days or more. Extremely cool or cloudy weather following treatment may slow activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above-ground growth and deterioration of underground plant parts.

Unless otherwise specified on this label, delay application until vegetation has emerged and reached the stages described for control of such vegetation under the "WEEDS CONTROLLED" section of this label. Unemerged plants arising from unattached underground rhizomes or root stocks of perennials will not be affected by the herbicide and will continue to grow. For this reason, best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per acre within the recommended range when (1) weed growth is heavy or dense, or (2) weeds are growing in an undisturbed (noncultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily

covered with dust.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed, or cut, and have not been allowed to regrow to the recommended stage for treatment.

Rainfall or irrigation occurring within 6 hours after application may reduce effectiveness. Heavy rainfall or irrigation within 2 hours after application may wash the chemical off the foliage and a repeat treatment may be required.

This product does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly recommended in this labeling. Mixing this product with herbicides or other materials not recommended on this label may result in reduced performance.

For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

~~Keep people and pets off treated areas until spray solution has dried.~~

DOMESTIC ANIMALS: This product is considered to be relatively nontoxic to dogs and other domestic animals; however, ingestion of this product or large amounts of freshly sprayed vegetation may result in temporary gastrointestinal irritation (vomiting, diarrhea, colic, etc.). If such symptoms are observed, provide the animal with plenty of fluids to prevent dehydration. Call a veterinarian if symptoms persist for more than 24 hours.

ATTENTION

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of injury occurring from the use of this product is greatest when winds are gusty or in excess of 5 miles per hour or when other conditions, including lesser wind velocities, will allow spray drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely

to drift. AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.

NOTE: Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES. DO NOT APPLY WHEN WIND OR OTHER CONDITIONS FAVOR DRIFT. HAND-GUN APPLICATIONS SHOULD BE PROPERLY DIRECTED TO AVOID SPRAYING DESIRABLE PLANTS. NOTE: REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

MIXING

This product mixes readily with water. Mix spray solutions of this product as follows: Fill the mixing or spray tank with the required amount of water. Add the recommended amount of this product (see the "DIRECTIONS FOR USE" and "WEEDS CONTROLLED" sections of this label) near the end of the filling process and mix well. Remove hose from tank immediately after filling to avoid siphoning back into the carrier source. During mixing and application, foaming of the spray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, terminate by-pass and return lines at the bottom of the tank and, if needed, use an approved anti-foam or defoaming agent.

TANK MIXTURES

Always predetermine the compatibility of labeled tank mixtures of this product with water carrier by mixing small proportional quantities in advance.

Mix labeled tank mixtures of this product with water as follows:

1. Place a 20 to 35 mesh screen or wetting basket over filling port.
2. Through the screen, fill the spray tank one-half full with water and start agitation.
3. If a wettable powder is used, make a slurry with the water carrier, and add it SLOWLY through the screen into the tank. Continue agitation.

4. If a flowable formulation is used, premix one part flowable with one part water. Add diluted mixture SLOWLY through the screen into the tank. Continue agitation.
5. If an emulsifiable concentrate formulation is used, premix one part emulsifiable concentrate with two parts water. Add diluted mixture slowly through the screen into the tank. Continue agitation.
6. Continue filling the spray tank with water and add the required amount of this product near the end of the filling process.
7. Where nonionic surfactant is recommended, add this to the spray tank before completing the filling process.
8. Add individual formulations to the spray tank as follows: wettable powder, flowable, emulsifiable concentrate, drift control additive, water soluble liquid followed by surfactant.

Maintain good agitation at all times until the contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed.

Keep by-pass line on or near bottom of tank to minimize foaming. Screen size in nozzle or line strainers should be no finer than 50 mesh. Carefully select proper nozzle to avoid spraying a fine mist. For best results with conventional ground application equipment, use flat fan nozzles.

Clean sprayer and parts immediately after using this product by thoroughly flushing with water.

ADDITIVES

SURFACTANTS

Nonionic surfactants which are labeled for use with herbicides may be used. Do not reduce rates of this product when adding surfactant. When adding additional surfactant, use 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration (4 quarts per 100 gallons of spray solution) for those surfactants containing less than 70 percent active ingredient. Read and carefully observe surfactant cautionary statements and other information appearing on the surfactant label.

AMMONIUM SULFATE

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product, and this product plus 2,4-D, Banvel™ or residual herbicide tank mixtures on annual and perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Low-quality ammonium sulfate may contain material that will not readily dissolve, which could result in nozzle tip plugging. To determine quality, perform a jar test by adding 1/3 cup of ammonium sulfate to 1 gallon of water and agitate for 1 minute. If undissolved sediment is observed, predissolve the ammonium sulfate in water and filter prior to addition to the spray tank. If ammonium sulfate is added directly to the spray tank, add slowly with agitation. Adding too quickly may clog outlet line. Ensure that ammonium sulfate is completely dissolved in the spray tank before adding herbicides or surfactant. Thoroughly rinse the spray system with clean water after use to reduce corrosion.

NOTE: The use of ammonium sulfate as an additive does not preclude the need for additional surfactant. Do not use herbicide rates lower than recommended in this label.

COLORANTS OR DYES

Agriculturally-approved colorants or marking dyes may be added to this product. Colorants or dyes used in spray solutions of this product may reduce performance, especially at lower rates or dilutions. Use colorants or dyes according to the manufacturer's recommendations.

APPLICATION EQUIPMENT AND TECHNIQUES

Do not apply this product through any type of irrigation system.

This product may be applied with the following application equipment:

Aerial -- Fixed Wing and Helicopter

Broadcast Spray

Controlled Droplet Applicator (CDA) -- Hand-held or boom-mounted applicators which produce a spray consisting of a narrow range of droplet sizes.

Hand-Held and High-Volume Spray Equipment -- Knapsack and backpack sprayers, pump-up pressure sprayers, handguns, handwands, mistblowers*, lances and other hand-held and motorized spray

equipment used to direct the spray onto weed foliage.

*This product is not registered in California or Arizona for use in mistblowers.

Selective equipment -- Recirculating sprayers, shielded sprayers and wiper applicators.

See the appropriate part of this section for specific instructions and rates of application.

■ AERIAL EQUIPMENT ■

Use the recommended rates of this herbicide in 3 to 15 gallons of water per acre unless otherwise specified on this label. See the "WEEDS CONTROLLED" section of this label for specific rates. Unless otherwise specified, do not exceed 1 quart per acre. Aerial applications of this product may be made in annual cropping conventional tillage systems, fallow and reduced tillage systems and preharvest applications, ~~silvicultural sites and rights-of-way~~. Refer to the individual use area sections of this label for recommended volumes and application rates. FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

Avoid direct application to any body of water.

AVOID DRIFT--DO NOT APPLY DURING ~~LOW-LEVEL~~ INVERSION CONDITIONS, WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITION WHICH FAVORS DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Ensure uniform application -- To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during

spraying or from spills. PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE. The maintenance of an organic coating (paint), which meets aerospace specification MIL-C-38413, may prevent corrosion.

This product plus OustTM, Banvel or 2,4-D tank mixtures may not be applied by air in California.

■ BROADCAST EQUIPMENT ■

For control of annual or perennial weeds listed on this label using broadcast equipment -- Use the recommended rates of this product in 3 to 40 gallons of water per acre as a broadcast spray unless otherwise specified on this label. See the ''WEEDS CONTROLLED'' section of this label for specific rates. As density of weeds increases, spray volume should be increased within the recommended range to ensure complete coverage. Carefully select proper nozzle to avoid spraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

■ CONTROLLED DROPLET APPLICATION (CDA) ■

The rate of this product applied per acre by vehicle-mounted CDA equipment must not be less than the amount recommended in this label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 3 to 15 gallons of water per acre.

For the control of labeled annual weeds with hand-held CDA units, apply a 20 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 1.5 MPH (1 quart per acre). For the control of labeled perennial weeds, apply a 20 to 40 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 0.75 mph (2 to 4 quarts per acre).

Controlled droplet application equipment produces a spray pattern which is not easily visible. Extreme care must be exercised to avoid spray or drift contacting the foliage or any other green tissue of desirable vegetation, as damage or destruction may result.

■ HAND-HELD and HIGH-VOLUME EQUIPMENT ■

Use coarse sprays only.

Mix this product in clean water and apply to foliage of vegetation to be controlled. For applications made on a spray-to-wet basis, spray coverage should be uniform and complete. Do not spray to the point of runoff.

For control of annual weeds listed on this label, apply a 0.5 percent solution of this product plus nonionic surfactant to weeds less than 6 inches in height or runner length. Apply prior to seedhead formation in grass or bud formation in broadleaf weeds. Allow three or more days before tillage or mowing.

For annual weeds over 6 inches tall, or when not using additional surfactant, or unless otherwise specified, use a 1 percent solution. For best results, use a 2 percent solution on harder-to-control perennials, such as bermudagrass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

When using application methods which result in less than complete coverage, use a 5 percent solution for annual and perennial weeds and a 5 to 10 percent solution for woody brush and trees.

Prepare the desired volume of spray solution by mixing the amount of this product in water as shown in the following table:

Spray Solution

Amount of Roundup

Desired Volume	1/2%	1%	1 1/2%	2%	5%	10%
1 Gal	2/3 oz	1-1/3 oz	2 oz	2-2/3 oz	6-1/2 oz	13 oz
25 Gal	1 pt	1 qt	1-1/2 qt	2 qt	5 qt	10 qt
100 Gal	2 qt	1 gal	1-1/2 gal	2 gal	5 gal	10 gal

2 tablespoons = 1 fluid ounce

For use in knapsack sprayers, it is suggested that the recommended amount of this product be mixed with water in a larger container. Fill sprayer with the mixed solution.

■ SELECTIVE EQUIPMENT ■

This product may be applied through a recirculating spray system, a shielded applicator, or a wiper applicator after dilution and

thorough mixing with water to listed weeds growing in any noncrop site specified on this label and only when specifically recommended in cropping systems.

A recirculating spray system directs the spray solution onto weeds growing above desirable vegetation, while spray solution not intercepted by weeds is collected and returned to the spray tank for reuse.

A shielded applicator directs the herbicide solution onto weeds, while shielding desirable vegetation from the herbicide.

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution.

AVOID CONTACT WITH DESIRABLE VEGETATION.

Contact of the herbicide solution with the desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that the lowest spray stream or wiper contact point is at least 2 inches above the desirable vegetation. Droplets, mist, foam, or splatter of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Applications made above the crops should be made when the weeds are a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatment may be necessary.

SHIELDED APPLICATORS

When applied as directed under conditions described for shielded applicators, this product will control those weeds listed in the "WEEDS CONTROLLED" section of this label.

Use the following equation to convert from a broadcast rate per acre to a band rate per acre.

$$\begin{array}{lclcl} \text{Band width} & & \text{Herbicide} & & \text{Herbicide} \\ \text{in inches} & & \text{Broadcast} & & \text{Band RATE} \\ \text{Row width} & \times & \text{RATE} & = & \text{per acre} \\ \text{in inches} & & \text{per acre} & & \end{array}$$

Band width in inches	X	Broadcast VOLUME of solution per acre	=	Band VOLUME of solution per acre
Row width in inches				

Use nozzles that provide uniform coverage within the treated area. Keep shields on shielded sprayers adjusted to protect desirable vegetation. **EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT WITH DESIRABLE VEGETATION.**

For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

WIPER APPLICATORS

Wiper applicators are devices that physically wipe appropriate amounts of this product directly onto the weed.

Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Operate this equipment at ground speeds no greater than 5 mph. Performance may be improved by reducing speed in areas of heavy weed infestations to ensure adequate wiper saturation. Better results may be obtained if 2 applications are made in opposite directions.

Avoid leakage or dripping onto desirable vegetation. Adjust height of applicator to ensure adequate contact with weeds. Keep wiping surfaces clean. Be aware that, on sloping ground, the herbicide solution may migrate, causing dripping on the lower end and drying of the wicks on the upper end of a wiper applicator.

Do not use wiper equipment when weeds are wet.

Mix only the amount of solution to be used during a 1-day period, as reduced activity may result from use of leftover solutions. Clean wiper parts immediately after using this product by thoroughly flushing with water.

Do not add surfactant to the herbicide solution.

For Rope or Sponge Wick Applicators -- Mix 1 gallon of this product in 2 gallons of water to prepare a 33 percent solution. Apply this solution to weeds listed in this "WIPER APPLICATORS" section.

For Porous-Plastic Applicators -- Solutions ranging from 33 to 100 percent of this product in water may be used in porous-plastic wiper applicators.

When applied as recommended under the conditions described for
'WIPER APPLICATORS', this product CONTROLS the following weeds:

ANNUAL GRASSES

Corn

Zea mays

Panicum, Texas

Panicum texanum

Rye, common

Secale cereale

Shattercane

Sorghum bicolor

ANNUAL BROADLEAVES

Sicklepod

Cassia obtusifolia

Spanishneedles

Bidens bipinnata

Starbur, bristly

Acanthospermum hispidum

When applied as recommended under the conditions described for
'WIPER APPLICATORS', this product SUPPRESSES the following weeds:

ANNUAL BROADLEAVES

Beggarweed, Florida

Desmodium tortuosum

Dogfennel

Eupatorium capilliflorum

Pigweed, redroot

Amaranthus retroflexus

Ragweed, common

Ambrosia artemisiifolia

Ragweed, giant

Ambrosia trifida

Sunflower

Helianthus annuus

Thistle, musk

Carduus nutans

Velvetleaf

Abutilon theophrasti

PERENNIAL GRASSES

Bermudagrass

Cynodon dactylon

Guineagrass

Panicum maximum

Johnsongrass

Sorghum halepense

Smutgrass

Sporobolus poiretii

Vaseygrass

Paspalum urvillei

PERENNIAL BROADLEAVES

Dogbane, hemp

Apocynum cannabinum

Milkweed

Asclepias syriaca

Nightshade, silverleaf

Solanum elaeagnifolium

Thistle, Canada

Cirsium arvense

WEEDS CONTROLLED

This herbicide controls many annual and perennial grasses and broadleaf weeds.

ANNUAL WEEDS

- Apply to actively growing grass and broadleaf weeds.
- Allow at least 3 days after treatment before tillage.
- For maximum agronomic benefit, apply when weeds are 6 inches or less in height.

- To prevent seed production, applications should be made prior to seedhead formation.
- This product does not provide residual control; therefore, delay application until maximum weed emergence. Repeat treatments may be necessary to control later germinating weeds.

**LOW-VOLUME BROADCAST APPLICATION
(LOW-RATE TECHNOLOGY)**

When applied as directed under the conditions described, this product will control the weeds listed below when:

1. Water carrier volumes of 3 to 10 gallons per acre for ground applications and 3 to 5 gallons per acre for aerial applications are recommended. (See the "AERIAL APPLICATION" section of this label for approved sites.)
2. A nonionic surfactant is added at 0.5 to 1 percent by total spray volume. Use 0.5 percent surfactant concentration when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration for those surfactants containing less than 70 percent active ingredient.

NOTE

- The addition of 2 percent dry ammonium sulfate by weight or 17 pounds per 100 gallons of water may increase the performance of this product on annual weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.
- Do not tank-mix with soil residual herbicides when using these rates unless otherwise specified.
- For weeds that have been mowed, grazed or cut, allow regrowth to occur prior to treatment.
- Refer to the "TANK MIXTURES" portion of this section for control of additional broadleaf weeds.

WEED SPECIES	MAXIMUM HEIGHT/LENGTH	RATE PER ACRE* (Fluid Ounces)
Foxtail <i>Setaria spp.</i>	12"	8 oz.

Barnyardgrass	6"	12 oz.
<i>Echinochloa crus-galli</i>	(0 to 4"	16 oz. ¹⁾
	(4 to 6"	24 oz. ¹⁾

Bluegrass, annual
Poa annua

Brome, downy**
Bromus tectorum

Mustard, blue
Chorispora tenella

Mustard, tansy
Descurainia pinnata

Mustard, tumble
Sisymbrium altissimum

Mustard, wild
Sinapis arvensis

Spurry, umbrella
Holosteum umbellatum

Barley	12"
<i>Hordeum vulgare</i>	

Rye
Secale cereale

Sandbur, field
Cenchrus spp.

Shattercane
Sorghum bicolor

Stinkgrass
Eragrostis cilianensis

Wheat	18"
<i>Triticum aestivum</i>	

Morningglory	2"	16 oz.
<i>Ipomoea spp.</i>		

Sicklepod

Cassia obtusifolia

Bluegrass, bulbous
Poa bulbosa

6"

Cheat
Bromus secalinus

Chickweed, common
Stellaria media

Chickweed, mouseear
Cerastium vulgatum

Corn
Zea mays

Goatgrass, jointed
Aegilops cylindrica

Groundsel, common
Senecio vulgaris

Henbit
Lamium amplexicaule

Horseweed/Marestail
Conyza canadensis

Lambsquarters, common
Chenopodium album

Pennycress, field
Fanweed
Thlaspi arvense

Rocket, London
Sisymbrium irio

Ryegrass, Italian
Lolium multiflorum

Shepherdspurse
Capsella bursa-pastoris

Spurge, annual
Euphorbia spp.

Buttercup
Ranunculus spp.

12"

220

Cocklebur
Xanthium strumarium

Crabgrass
Digitaria spp.

Dwarfdandelion
Krigia cespitosa

Falseflax, smallseed
Camelina microcarpa

Foxtail, Carolina
Alopecurus carolinianus

Johnsongrass, seedling
Sorghum halepense

Oats, wild
Avena fatua

Panicum, fall
Panicum dichotomiflorum

Panicum, Texas
Panicum texanum

Pigweed, redroot
Amaranthus retroflexus

Pigweed, smooth
Amaranthus hybridus

Witchgrass
Panicum capillare

Sicklepod <i>Cassia obtusifolia</i>	3 to 4"	24 oz
Signalgrass, broadleaf <i>Brachiaria platyphylla</i>	4"	
Horseweed/Marestail <i>Conyza canadensis</i>	7 to 12"	
Lambsquarters, common <i>Chenopodium album</i>		
Spurge, annual <i>Euphorbia spp.</i>		

Rice, red <i>Oryza sativa</i>	4"	32 oz.
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Teaweed <i>Sida spinosa</i>		
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Sprangletop <i>Leptochloa spp.</i>	6"	
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Geranium, Carolina <i>Geranium carolinianum</i>	12"	
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Goosegrass <i>Eleusine indica</i>		
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Primrose, cutleaf evening <i>Oenothera laciniata</i>		
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Pusley, Florida <i>Richardia scabra</i>		
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Sicklepod <i>Cassia obtusifolia</i>	5 to 12"	
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Spanishneedles <i>Bidens bipinnata</i>		
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Filaree <i>Erodium spp.</i>	12"	48 oz.
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Sprangletop <i>Leptochloa spp.</i>		
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¹Use these rates to control barnyardgrass in Alabama, Arkansas, Mississippi, Missouri, Louisiana and Texas for preplant treatments.

* For those rates less than 32 fluid ounces per acre, this product at rates up to 32 fluid ounces per acre may be used where heavy weed densities exist.

** For control in no-till systems, use 16 fluid ounces per acre.

■ TANK MIXTURES ■

Amaranthus retroflexus

Pigweed, smooth (12")

Amaranthus hybridus

Thistle, Russian (12")

Salsola kali

*Controlled with Banvel tank mixture only.

Apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre to control the following annual broadleaf weeds when less than 6 inches in height.

Ragweed, common

Ambrosia artemisiifolia

Ragweed, giant

Ambrosia trifida

Smartweed, Pennsylvania

Polygonum pensylvanicum

Velvetleaf

Abutilon theophrasti

HIGH-VOLUME BROADCAST APPLICATIONS

When applied as directed under the conditions described, this product will control the weeds listed below when water carrier volumes are 10 to 40 gallons per acre for ground applications.

Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume. Use 1 quart per acre if weeds are less than 6 inches tall and 1.5 quarts per acre if weeds are over 6 inches tall. If weeds have been mowed, grazed or cut, allow adequate time for new growth to reach recommended stages prior to treatment. These rates will also provide control of weeds listed in the "LOW-VOLUME BROADCAST APPLICATION" section.

WEED SPECIES

Balsamapple*

Momordica charantia

Bassia, fivehook

Bassia hyssopifolia

Brome

Bromus spp.

Fiddleneck

Amsinckia spp.

Fleabane, flaxleaf-hairy

Conyza bonariensis

Fleabane

Erigeron spp.

Kochia

Kochia scoparia

Lettuce, prickly

Lactuca serriola

Panicum

Panicum spp.

Ragweed, common

Ambrosia artemisiifolia

Ragweed, giant

Ambrosia trifida

Smartweed, Pennsylvania

Polygonum pennsylvanicum

Sowthistle, annual

Sonchus oleraceus

Sunflower

Helianthus annuus

Thistle, Russian

Salsola kali

Velvetleaf

Abutilon theophrasti

*Apply with hand-held equipment only.

PERENNIAL WEEDS

Apply this product as follows to control or destroy most perennial weeds:

NOTE: If weeds have been mowed or tilled, do not treat until plants have resumed active growth and have reached the recommended stages.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Repeat treatments

must be made prior to crop emergence.

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product on perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.

When applied as recommended under the conditions described, this product WILL CONTROL the following PERENNIAL WEEDS:

Alfalfa

Medicago sativa

Alligatorweed*

Alternanthera philoxeroides

Anise (fennel)

Foeniculum vulgare

Artichoke, Jerusalem

Helianthus tuberosus

Bahiagrass

Paspalum notatum

Bentgrass

Agrostis spp.

Bermudagrass

Cynodon dactylon

Bermudagrass, water (knotgrass)

Paspalum distichum

Bindweed, field

Convolvulus arvensis

Bluegrass, Kentucky

Poa spp.

Blueweed, Texas

Helianthus ciliaris

Brackenfern

Pteridium aquilinum

Bromegrass, smooth

Bromus inermis

Bursage, woollyleaf

Franseria tomentosa

Canarygrass, reed
Phalaris arundinacea

Cattail
Typha spp.

Clover, red
Trifolium pratense

Clover, white
Trifolium repens

Cogongrass
Imperata cylindrica

Dallisgrass
Paspalum dilatatum

Dandelion
Taraxacum officinale

Dock, curly
Rumex crispus

Dogbane, hemp
Apocynum cannabinum

Fescues
Festuca spp.

Fescue, tall
Festuca arundinacea

Guineagrass
Panicum maximum

Horsenettle
Solanum carolinense

Horseradish
Armoracia rusticana

Ice plant
Mesembryanthemum crystallinum

Johnsongrass
Sorghum halepense

Kikuyugrass
Pennisetum clandestinum

Knapweed

Centaurea repens

Lantana

Lantana camara

Lespedeza

Lespedeza spp.

Milkweed

Asclepias spp.

Muhly, wirestem

Muhlenbergia frondosa

Mullein, common

Verbascum thapsus

Napiergrass

Pennisetum purpureum

Nightshade, silverleaf

Solanum elaeagnifolium

Nutsedge; purple, yellow

Cyperus rotundus

Cyperus esculentus

Orchardgrass

Dactylis glomerata

Pampasgrass

Cortaderia jubata spp.

Paragrass

Brachiaria mutica

Phragmites*

Phragmites spp.

Poison hemlock

Conium maculatum

Quackgrass

Agropyron repens

Redvine*

Brunnichia ovata

Reed, giant

Arundo donax

Ryegrass, perennial

Lolium perenne

Smartweed, swamp

Polygonum coccineum

Spurge, leafy*

Euphorbia esula

Starthistle, yellow

Centaurea solstitialis

Sweet potato, wild*

Ipomoea pandurata

Thistle, Canada

Cirsium arvense

Thistle, artichoke

Cynara cardunculus

Timothy

Phleum pratense

Torpedograss*

Panicum repens

Trumpet creeper*

Campsis radicans

Vaseygrass

Paspalum urvillei

Velvetgrass

Holcus spp.

Wheatgrass, western

Agropyron smithii

*Partial Control

This product is not registered in California for use on water bermudagrass.

See "DIRECTIONS FOR USE" and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for labeled uses and specific application instructions.

Alfalfa--Apply 1 quart of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make application after the last hay cutting in the fall. Allow alfalfa to regrow to a height of 6 to 8 inches or more prior to treatment. Applications should be followed

with deep tillage at least 7 days after treatment, but before soil freeze-up.

Alligatorweed--Apply 4 quarts of this product per acre or apply a 1.5 percent solution with hand-held equipment to provide partial control. Apply when most of the plants are in bloom. Repeat applications will be required to maintain such control.



Bentgrass--For suppression in grass seed production areas. For ground applications only, apply 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure entire crown area has resumed growth prior to a fall application. Bentgrass should be actively growing and have at least 3 inches of growth. Tillage prior to treatment should be avoided. Tillage 7 to 10 days after application is recommended for best results. Failure to use tillage after treatment may result in unacceptable control.

Bermudagrass--For control, apply 5 quarts of this product per acre. For partial control, apply 3 quarts per acre. Treat when bermudagrass is actively growing and seedheads are present. Retreatment may be necessary to maintain control. Allow 7 or more days after application before tillage.

Bermudagrass, water (knotgrass)--Apply 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Apply when water bermudagrass is actively growing and 12 to 18 inches in length. Allow 7 or more days before tilling, flushing or flooding the field.

Fall applications only - Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Fallow fields should be tilled prior to application. Apply prior to frost on water bermudagrass that is actively growing and 12 to 18 inches in length. Allow 7 or more days before tillage.

Bindweed, field--For control, apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts east of the Mississippi River. Apply when the weeds are actively growing and are at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Also for control, apply 2 quarts of this product plus 0.5 pound a.i. of Banvel in 10 to 20 gallons of water per acre. At these rates, apply using ground application only.

The following tank mixtures with 2,4-D may be applied using aerial application equipment (except in California) in fallow and reduced tillage systems only.

For suppression on irrigated agricultural land, apply 1 to 2 quarts of this product plus 1 pound a.i. of 2,4-D in 10 to 20 gallons of water per acre with ground equipment only. Applications should be made following harvest or in fall fallow ground when the bindweed is actively growing and the majority of runners are 12 inches or more in length. The use of at least one irrigation will promote active bindweed growth.

For suppression, apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Applications should be delayed until maximum emergence has occurred and when vines are between 6 to 18 inches in length.

In California only, apply 1 to 5 quarts of this product per acre. Actual rate needed for suppression or control will vary within this range depending on local conditions.

For suppression on irrigated land where annual tillage is performed, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing bindweed that has reached a length of 12 inches or greater. Allow maximum weed emergence and runner growth. Do not treat when weeds are under drought stress as good soil moisture is necessary for active growth. Allow 3 or more days after application before tillage.

Bluegrass, Kentucky / Bromegrass, smooth / Orchardgrass--Apply 2 quarts of this product in 10 to 40 gallons of water per acre when the grasses are actively growing and most plants have reached boot-to-early seedhead stage of development. For partial control in pasture or hay crop renovation, apply 1 to 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing plants when most have reached 4 to 12 inches in height. Allow 7 or more days after application before tillage.

Orchardgrass (sods going to no-till corn)--Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to orchardgrass that is a minimum of 12 inches tall for spring

applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting. A sequential application of atrazine will be necessary for optimum results.

Blueweed, Texas--Apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts per acre east of the Mississippi River. Apply when weed is actively growing and is at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. New leaf development indicates active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Brackenfern--Apply 3 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment. Apply to fully expanded fronds which are at least 18 inches long.

Bursage, woollyleaf--For control, apply 2 quarts of this product plus 1 pint of Banvel per acre. For partial control, apply 1 quart of this product plus 1 pint of Banvel per acre. Add 0.5 to 1 percent nonionic surfactant by total spray volume and apply in 3 to 20 gallons of water per acre. Apply when plants are producing new active growth which has been initiated by moisture for at least 2 weeks and when plants are at or beyond flowering.

Canarygrass, reed/Timothy / Wheatgrass, western--Apply 2 to 3 quarts of this product per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth. Allow 7 or more days after application before tillage.

Cogongrass--Apply 3 to 5 quarts of this product plus 0.5 to 1 percent nonionic surfactant in 10 to 40 gallons of water per acre. Apply when Cogongrass is at least 18 inches tall and actively growing in late summer or fall. Allow 7 or more days after application before tillage or mowing. Due to uneven stages of growth and the dense nature of vegetation preventing good spray coverage, repeat treatments may be necessary to maintain control.

Dandelion/Dock, curly--Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fluid ounces of this product plus 0.5 pound a.i. 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre.

Dogbane, hemp--Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to

flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage.

For suppression, apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Delay applications until maximum emergence of dogbane has occurred.

Fescue, tall--Apply 3 quarts of this product in 10 to 40 gallons of water per acre to actively growing plants when most have reached boot-to-early seedhead stage of development.

Fall applications only--Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to fescue in the fall when actively growing and plants have 6 to 12 inches of new growth. Allow 7 or more days after application before tillage. A sequential application of 1 pint per acre of this product plus nonionic surfactant will improve long-term control and control seedlings germinating after fall treatments or the following spring.

Guineagrass--Apply 3 quarts of this product per acre or use a 1 percent solution with hand-held equipment. Apply to actively growing guineagrass when most has reached at least the 7-leaf stage of growth. Ensure thorough coverage when using hand-held equipment. Allow 7 or more days after application before tillage.

Johnsongrass/Ryegrass, perennial--Apply 1 to 3 quarts of this product per acre. In annual cropping systems apply 1 to 2 quarts of this product per acre. Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre. In noncrop, or areas where annual tillage (no-till) is not performed, apply 2 to 3 quarts of this product in 10 to 40 gallons of water per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth or in the fall prior to frost. Allow 7 or more days after application before tillage. Do not tank-mix with residual herbicides when using the 1 quart per acre rate.

For burndown of Johnsongrass, apply 1 pint per acre plus 0.5 to 1 percent nonionic surfactant in 3 to 10 gallons of water per acre before the plants reach a height of 12 inches. For this use, allow at least 3 days after treatment before tillage.

Spot treatment (partial control or suppression)--Apply a 1 percent

solution of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume when Johnsongrass is 12 to 18 inches in height. Coverage should be uniform and complete.

Kikuyugrass--Apply 2 to 3 quarts of this product per acre. Spray when most kikuyugrass is at least 8 inches in height (3 or 4-leaf stage of growth) and actively growing. Allow 3 or more days after application before tillage.

Knapweed/Horseradish--Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage.

Lantana--Apply this product as a 1 to 1.25 percent solution using hand-held equipment only. Apply to actively growing lantana at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth. Allow 7 or more days after application before tillage.

Milkweed, common--Apply 3 quarts of this product per acre. Apply when actively growing and most of the milkweed has reached the late bud to flower stage of growth. Following small grain harvest or mowing, allow milkweed to regrow to a mature stage prior to treatment. Allow 7 or more days after application before tillage.

Muhly, wirestem--Apply 1 to 2 quarts of this product per acre. Use 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre or in pasture, sod, or noncrop areas. Spray when the wirestem muhly is 8 inches or more in height and actively growing. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage. This product will not provide residual control of wirestem muhly from seeds which germinate after application of this product. Do not tank mix with residual herbicides when using the 1 quart per acre rate.

Nightshade, silverleaf--For control, apply 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Applications should be made when at least 60 percent of the plants have berries. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth.

Nutsedge; purple, yellow--Apply 3 quarts of this product per acre as a broadcast spray, or apply a 1 to 2 percent solution from hand-

held equipment to control existing nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Repeat treatments will be required for long-term control of ungerminated tubers.

Sequential applications of 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre will provide control. Make applications when a majority of the plants are in the 3 to 5-leaf stage (less than 6 inches tall). Repeat this application, as necessary, when newly emerging plants reach the 3 to 5-leaf stage. Subsequent applications will be necessary for long-term control.

For suppression to partial control of existing plants, apply 1 pint to 2 quarts of this product per acre, plus 0.5 to 1 percent nonionic surfactant in 3 to 40 gallons of water per acre. Treat when plants have 3 to 5 leaves and most are less than 6 inches tall. Repeat treatments will be required to control subsequent emerging plants or regrowth of existing plants. Wait 7 days after treatment before tillage or mowing.

Pampasgrass/~~ice plant~~--Apply this product as a 1.5 to 2 percent solution using hand-held equipment. Apply to plants that are actively growing. ~~Pampasgrass should be~~ at or beyond the boot stage of growth. Thorough coverage is necessary for best control.

Phragmites--For partial control of phragmites in Florida and the counties of other states bordering the Gulf of Mexico, apply 5 quarts per acre as a broadcast spray or apply a 2 percent solution from hand-held equipment. In other areas of the U.S., apply 3 quarts per acre as a broadcast spray or apply a 1 percent solution from hand-held equipment for partial control. For best results, treat during late summer or fall months or when plants are actively growing and in full bloom. Treatment before or after this stage may lead to reduced control. Due to the dense nature of the vegetation, which may prevent good spray coverage or uneven stages of growth, repeat treatments may be necessary to maintain control. Visual control symptoms will be slow to develop.

Quackgrass--In Annual Cropping Systems, or in Pastures and Sods Followed by Deep Tillage: Apply 1 to 2 quarts of this product per acre. For the 1 quart rate, apply 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. For the 2 quart rate, apply in 10 to 40 gallons of water per acre. Do not tank mix with residual herbicides when using the 1 quart rate. Spray when quackgrass is 6 to 8 inches in height and actively growing. Do not till between harvest and fall applications or in fall or spring prior to spring application. Allow 3 or more days after application before tillage. In pastures or sods, for

best results use a moldboard plow.

Quackgrass--Pasture or Sod or Other Noncrop Areas Where Deep Tillage is Not Planned Following Application: Apply 2 to 3 quarts in 10 to 40 gallons of water per acre. Spray when the quackgrass is greater than 8 inches tall and actively growing. Do not till between harvest and fall application or in fall or spring prior to spring application. Allow 3 or more days after application before tillage.

Redvine--For suppression, apply 24 fluid ounces of this product per acre at each of two applications 7 to 14 days apart or a single application of 2 quarts per acre. Apply recommended rates in 5 to 10 gallons of water per acre plus 0.5 to 1 percent nonionic surfactant by total volume. Apply ~~to actively growing plants~~ in late September or early October ~~to actively growing plants~~, which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

Reed, giant--For control of giant reed, apply a 2 percent solution of this product when plants are actively growing. Best results are obtained when applications are made in late summer to fall.

Smartweed, swamp--Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fluid ounces of this product plus 0.5 pound active ingredient of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Spurge, leafy--For suppression, apply 16 fluid ounces of this product plus 0.5 pound active ingredient 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing. If mowing has occurred prior to treatment, apply when most of the plants are 12 inches tall. Allow 7 or more days after application before tillage.



Sweet Potato, wild/~~thistle, artichoke~~—Apply this product as a 2 percent solution using hand-held equipment. Apply to actively growing weeds that are at or beyond the bloom stage of growth. Repeat applications ~~may~~ will be required. Allow the plant to reach the recommended stage of growth before retreatment. Allow 7 or more days before tillage.

Thistle, Canada--Apply 2 to 3 quarts of this product per acre. Apply to actively growing thistles when most are at or beyond the bud stage of growth. After harvest, mowing or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to the application of this product. Fall treatments must be applied before a killing frost. Allow 3 or more days after application before tillage.

For suppression of Canada thistle, apply 1 quart per acre of this product, or 1 pint of this product plus 0.5 pound a.i. 2,4-D per acre, plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall after harvest, mowing or tillage. Allow rosette regrowth to a minimum of 6 inches in diameter before treating. Applications can be made as long as leaves are still green and plants are actively growing at the time of application. Allow 3 or more days after application before tillage.

Torpedograss--Apply 4 to 5 quarts of this product per acre to provide partial control of torpedograss. Apply to actively growing torpedograss when most plants are at or beyond the seedhead stage of growth. Repeat applications will be required to maintain control. Fall treatments must be applied before frost. Allow 7 or more days after application before tillage.

Trumpet creeper--For control, apply 2 quarts of this product per acre in 5 to 10 gallons of water per acre. Apply to actively growing plants in late September or October, which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

Other perennials listed on this label--Apply 3 to 5 quarts of this product per acre. Apply when actively growing and most have reached early head or early bud stage of growth. Allow 7 or more days after application before tillage.

WOODY BRUSH AND TREES

When applied as recommended under the conditions described, this product CONTROLS or PARTIALLY CONTROLS the following woody brush, plants and trees:

Alder

Alnus spp.

Ash*

Fraxinus spp.

Aspen, quaking

Populus tremuloides

Bearmat (Bearclover)

Chamaebatia foliolosa

Beech

Fagus grandifolia

Birch

Betula spp.

Blackberry

Rubus spp.

Blackgum

Nyssa spp.

Bracken

Peridium spp.

Broom:

French

Cytisus monspessulanus

Scotch

Cytisus scoparius

Buckwheat, California*

Eriogonum fasciculatum

Cascara*

Rhamnus purshiana

Catsclaw*

Acacia greggi

Ceanothus*

Ceanothus spp.

Chamise

Adenostoma fasciculatum

Cherry:

Bitter

Prunus emarginata

Black

Prunus serotina

Pin
Prunus pensylvanica

Coyote brush
Baccharis consanguinea

Creeper, Virginia*
Parthenocissus quinquefolia

Dewberry
Rubus trivialis

Dogwood*
Cornus spp.

Elderberry
Sambucus spp.

Elm*
Ulmus spp.

Eucalyptus
Eucalyptus spp.

Gorse
Ulex europaeus

Hasardia*
Haplopappus squamosus

Hawthorn
Crataegus spp.

Hazel
Corylus spp.

Hickory*
Carya spp.

Holly, Florida/ Brazilian Peppertree*
Schinus terebinthifolius

Honeysuckle
Lonicera spp.

Hornbeam, American*
Carpinus caroliniana

Kudzu

Pueraria lobata
Locust, black*
Robinia pseudoacacia
Madrone
Arbutus menziesii
Manzanita
Arctostaphylos spp.
Maple:
 Red**
 Acer rubrum
 Sugar
 Acer saccharum
 Vine*
 Acer circinatum
Monkey Flower*
Mimulus guttatus
Oak:
 Black*
 Quercus velutina
 Northern Pin
 Quercus palustris
 Post
 Quercus stellata
 Red
 Quercus rubra
 Southern Red
 Quercus falcata
 White*
 Quercus alba
Persimmon*
Diospyros spp.
Pine
Pinus spp.
Poison Ivy
Rhus radicans

Poison Oak
Rhus toxicodendron

Poplar, yellow*
Liriodendron tulipifera

Raspberry
Rubus spp.

Redbud, eastern
Cercis canadensis

Rose, multiflora
Rosa multiflora

Russian-olive***
Elaeagnus angustifolia

Sage; black, white
Salvia mellifera spp.

Sagebrush, California
Artemisia californica

Salmonberry
Rubus spectabilis

Salt cedar
Taxodium spp.

Sassafras
Sassafras albidum

Sourwood
Oxydendrum arboreum

Sumac:
Poison*
Rhus vernix

Smooth*
Rhus glabra

Winged*
Rhus copallina

Sweetgum
Liquidambar styraciflua

Swordfern*
Polystichum munitum

Tallowtree, Chinese
Sapium sebiferum

Tan Oak
Lithocarpus densiflorus

Thimbleberry
Rubus parviflorus

Tobacco, tree*
Nicotiana glauca

Trumpet creeper
Campsis radicans

Waxmyrtle, southern*
Myrica cerifera

Willow
Salix spp.

- * Partial control
- ** See below for control or partial control instructions.
- *** This product is not registered in California for use on Russian-olive.

NOTE: If brush has been mowed or tilled or trees have been cut, do not treat until regrowth has reached the recommended stages of growth.

Apply this product when plants are actively growing and, unless otherwise directed, after full leaf expansion. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when application is made in the spring to early summer when brush species are at high moisture content and are flowering.

Ensure thorough coverage when using hand-held equipment. Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

See "DIRECTIONS FOR USE", and "MIXING, ADDITIVES and APPLICATION

INSTRUCTIONS'' sections of this label for labeled uses and specific application instructions.

Apply this product as follows to control or partially control the following woody brush and trees.

Alder/Dewberry/Honeysuckle/Post Oak/Raspberry—For control, apply 3 to 4 quarts per acre of this product as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment.

Aspen, quaking/Cherry: bitter, black, pin/Hawthorn /Oak, southern red/Sweetgum/Trumpet creeper— For control, apply 2 to 3 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment.

Birch/Elderberry/Hazel/Salmonberry/ Thimbleberry—For control, apply 2 quarts per acre of this product as a broadcast spray or as a 1 percent solution with hand-held equipment.

Blackberry—For control, apply 3 to 4 quarts per acre of this product as a broadcast spray, or 1 to 1.5 percent solution with hand-held equipment. Make application after plants have reached full leaf maturity. Best results are obtained when applications are made in late summer or fall. After berries have set or dropped in late fall, blackberry can be controlled by applying a 3/4 percent solution of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume with hand-held equipment. For control of blackberries after leaf drop and until killing frost or as long as stems are green, apply 3 to 4 quarts of this product in 10 to 40 gallons of water per acre.

Broom: French, Scotch—For control, apply a 1.5 to 2 percent solution with hand-held equipment.

Buckwheat, California/Basardia/Monkey Flower/ Tobacco, tree—For partial control of these species, apply a 1 to 2 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

Catsclaw—For partial control, apply as a 1 to 1.5 percent solution with hand-held equipment.

Coyote Brush—For control, apply a 1.5 to 2 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.

Eucalyptus—For control of eucalyptus resprouts, apply a 2 percent solution of this product with hand-held equipment when resprouts are 6 to 12 feet tall. Ensure complete coverage. Apply when plants are growing actively. Avoid application to drought-stressed plants.

Kudzu—For control, apply 4 quarts of this product per acre as a

broadcast spray or as a 2 percent solution with hand-held equipment. Repeat applications will be required to maintain control.

Madrone resprouts—For suppression or partial control, apply a 2 percent solution of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with spring/early summer treatments.

Maple, red—For control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed. For partial control, apply 2 to 4 quarts of this product per acre as a broadcast spray.

Maple, sugar/Oak, northern pin/Oak, red—For control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.

Poison Ivy/Poison Oak—For control, apply 4 to 5 quarts of this product per acre as a broadcast spray or as a 2 percent solution with hand-held equipment. Repeat applications may be required to maintain control. Fall treatments must be applied before leaves lose green color.

Rose, multiflora—For control, apply 2 quarts of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment. Treatments should be made prior to leaf deterioration by leaf-feeding insects.

Sage, black/Sagebrush, California/Chamise/Tallowtree, Chinese—For control of these species, apply a 1 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

Tan oak resprouts—For suppression or partial control, apply a 2 percent solution of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with fall applications.

Willow—For control, apply 3 quarts of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment.

Other Woody Brush and Trees listed on this label—For partial control, apply 2 to 4 ~~5~~ quarts of this product per acre as a broadcast spray or as a 1 to 2 percent solution with hand-held equipment.

NONCROP USES

See "GENERAL INFORMATION" and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for essential product performance information and the following "NONCROP" sections for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE TURFGRASSES, TREES, SHRUBS OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seeds.

~~Where repeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year.~~

This product does not provide residual weed control. For subsequent weed control, follow a label-approved herbicide program.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

INDUSTRIAL, RECREATIONAL AND PUBLIC AREAS

When applied as directed for "NONCROP USES", under conditions described, this product controls annual and perennial weeds listed on this label growing in areas such as airports, ditch banks, dry ditches, dry canals, fencerows, golf courses, highways, industrial plant sites, lumber yards, parking areas, parks, petroleum tank farms and pumping installations, ~~pipelines, power and telephone rights-of-way,~~ railroads, roadsides, schools, storage areas, utility substations, other public areas and similar industrial or noncrop areas.

For specific rates of application and instructions for control of various annual and perennial weeds and woody brush and trees, see the "WEEDS CONTROLLED" section of this label.

This product may be applied with recirculating sprayers, shielded applicators, or wiper applicators in any noncrop site specified on this label. See the Selective Equipment part of "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for information on proper use and calibration of this equipment.

■ TANK MIXTURES FOR INDUSTRIAL SITES AND FORESTRY SITE PREPARATIONS ■

Roundup plus OUSTTM

Use on industrial sites including airports, industrial plants, lumberyards, petroleum tank farms, pumping stations, pipelines, railroads, roadsides, storage areas or other similar sites where bare ground is desired.

~~This tank mixture may also be used as a site preparation treatment for sites to be planted to jack pine, loblolly pine, red pine, slash pine and Virginia pine.~~

When applied as directed for "'NONCROP USES'" under the conditions described, this product plus Oust provides control of annual weeds listed in the "'WEEDS CONTROLLED'" section of the label for this product and Oust, and control or partial control of the perennial weeds listed below.

Apply 1 to 2 quarts of this product with 2 to 4 ounces of Oust in 10 to 40 gallons of spray solution per acre as a broadcast spray to actively growing weeds.

~~This mixture may be applied by aerial equipment in site prep operations. When applied by air, use the recommended rates in 5 to 15 gallons of spray solution per acre.~~

This product plus Oust tank mixtures may not be applied by air in California.

For control of annual weeds, use the lower rates of these products.

For control of the listed perennial weeds, use the higher rates of both products. For partial control, use the lower rates.

Bahiagrass

Paspalum notatum

Bermudagrass*

Cynodon dactylon

Broomsedge

Andropogon virginicus

Dock, curly

Rumex crispus

Dogfennel

Eupatorium capilliflorum

Fescue, tall

Festuca arundinacea

Johnsongrass**

Sorghum halepense

Poorjoe**

Diodia teres

Quackgrass

Agropyron repens

Trumpetcreeper*

Campsis radicans

Vaseygrass

Paspalum urvillei

Vervain, blue

Verbena hastata

*Suppression at the higher rates only.

**Control at the lower rates.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

**TANK MIXTURES
NONCROP SITES**

When applied as a tank mixture, this product provides control of the emerged annual weeds and partial control of the emerged perennial weeds listed in this label. When applied as a tank mixture, the following residual herbicides will provide preemergence control of the weeds listed in the individual product labels.

■ Roundup plus DIURON ■

■ Roundup plus KROVAR™ I ■

■ Roundup plus KROVAR II ■

■ Roundup plus RONSTAR™ 50WP ■

■ Roundup plus SIMAZINE,
PRINCEP™ CALIBER™ 90 ■

- Roundup plus SIMAZINE 4L ■
- Roundup plus SIMAZINE 80W ■
- Roundup plus SURFLAN™ 75W ■
- Roundup plus SURFLAN AS ■

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution. See the 'MIXING, ADDITIVES and APPLICATION INSTRUCTIONS' section of this label before preparing these tank mixtures.

Read and carefully observe the label claims, cautionary statements, recommended use rates and all other information on the labels of all products used in these tank mixtures. Use according to the most restrictive label directions for each product in the mixture.

CONTROL OF EMERGED WEEDS

~~Note: For backpack sprayer and handgun applications, see the "HAND-HELD AND HIGH VOLUME EQUIPMENT" section for recommended rates.~~

Annual Weeds—Apply 1 quart per acre of this product in these tank mixtures when weeds are less than 6 inches tall and 1.5 quarts per acre when weeds are more than 6 inches tall.

Perennial Weeds—For partial control of perennial weeds using these tank mixtures, apply 2 to 5 quarts per acre of this product. Follow the recommendations in the 'WEEDS CONTROLLED' section of this label for stage of growth and rate of application for specific perennial weeds.

PREEMERGENCE WEED CONTROL

For preemergence weed control, refer to the individual product labels for specific noncrop sites, rates, carrier volumes and precautionary statements.

Mix only the quantity of spray solution which can be used during the same day. Do not allow these tank mixtures to stand overnight as this may result in reduced weed control.

~~APPLY THESE TANK MIXTURES THROUGH CONVENTIONAL BROADCAST EQUIPMENT ONLY.~~

FARMSTEAD WEED CONTROL

When applied as directed for ''NONCROP USES'', under conditions described, this product controls undesirable vegetation listed on this label around farmstead building foundations, along and in fences, shelterbelts and for general nonselective farmstead weed control.

For specific rates of application and instructions for control of various annual and perennial weeds, see the 'WEEDS CONTROLLED' section of this label.

FARM DITCHES

This product will suppress perennial grasses along farm ditches. Apply this product at a rate of 6 to 8 fluid ounces per acre. Use 8 fluid ounces per acre when treating tall (coarse) fescue, fine fescue, orchardgrass or quackgrass covers. For best suppression of these species, add ammonium sulfate at a rate of 1.7 pounds per 10 gallons of spray solution. Use 6 fluid ounces per acre without ammonium sulfate when treating Kentucky bluegrass.

Apply treatments in 10 to 20 gallons of spray solution per acre to actively growing perennial grass covers. For best spray distribution and coverage, use flat fan nozzles.

Add a nonionic surfactant at a rate of 0.5 percent of the spray solution.

Where broadleaf weed control or suppression is desired, tank mix this product with an appropriate, labeled broadleaf weed herbicide.

CONSERVATION RESERVE PROGRAM (CRP ACRES)

This product can be used to control undesirable vegetation when rotating out of CRP acres or to suppress competitive growth and seed production of undesirable vegetation in CRP acres.

For specific rates of application for various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

CRP applications may be made with wiper applicators or conventional spray equipment.

For selective applications with broadcast spray equipment, apply 12

to 16 ounces per acre of this product in early spring before desirable CRP grasses, such as crested and tall wheatgrass, break dormancy and initiate green growth. Late fall applications can be made after desirable perennial grasses have reached dormancy. Some stunting of CRP perennial grasses will occur if applications are made when plants are not dormant.

HABITAT MANAGEMENT

This product is recommended for the restoration and/or maintenance of native habitats and in wildlife management areas. Apply as recommended in the "NONCROP USES" section of this label.

Habitat Restoration and Maintenance - When applied as directed, exotic and other undesirable vegetation may be controlled in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broadspectrum vegetation control requirements in habitat management areas. Spot treatments can be made to selectively remove unwanted plants for habitat maintenance and enhancement. For spot treatments, care should be exercised to keep spray off of desirable plants.

Wildlife Food Plots - This product may be used as a site preparation treatment prior to planting wildlife food plots. Any wildlife food species may be planted after applying this product, or native species may be allowed to repopulate the area. If tillage is needed to prepare a seedbed, wait 7 days after applying this product before tilling.

ORNAMENTALS, ~~TREE NURSERIES~~ AND CHRISTMAS TREES

THIS PRODUCT IS NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN ORNAMENTALS AND CHRISTMAS TREES.

Note: Desirable plants may be protected from the spray solution by using shields or coverings made of cardboard or other impermeable material.

When applied as instructed for the conditions described for "NONCROP USES", this product controls undesirable vegetation listed on this label prior to planting, within and around greenhouses and shadehouses, and as a postdirected spray around established ornamentals and Christmas trees.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

Where repeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year.

Site Preparation—Following preplant applications of this product, any ornamental, ~~nursery species~~ or Christmas tree species may be planted. Precautions should be taken to protect nontarget plants during site preparation applications.

Greenhouse/Shadehouse Use—This product may be used to control weeds listed on this label which are growing in greenhouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

Postdirected Spray—Use as a postdirected spray around established woody ornamental species, ~~nursery species~~ or Christmas trees such as those listed below. Care must be exercised to avoid contact of spray, drift or mist with foliage of or green bark of established ornamental species.

Arborvitae

Thuja spp.

Azalea

Rhododendron spp.

Boxwood

Buxus spp.

Crabapple

Malus spp.

Euonymus

Euonymus spp.

Fir

Abies spp.

Pseudotsuga spp.

Jojoba

Simmondsia chinensis

Hollies

Ilex spp.
Lilac
Syringa spp.
Magnolia
Magnolia spp.
Maple
Acer spp.
Oak
Quercus spp.
Privet
Ligustrum spp.
Pine
Pinus spp.
Spruce
Picea spp.
Yew
Taxus spp.

**SILVICULTURAL SITES and
RIGHTS-OF-WAY**

~~NOTE: NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN
SILVICULTURAL NURSERIES~~

~~When applied as directed for "'NONCROP USES'" under conditions described, this product controls undesirable vegetation listed on this label. This product also suppresses or controls undesirable vegetation listed on this label when applied at recommended rates for release of established coniferous species listed on this label.~~

~~For specific rates of application and instructions for control of various brush, annual and perennial weeds, see the "'WEEDS CONTROLLED'" section of this label. For specific rates of application for release of listed coniferous species, see the "'CONIFER RELEASE'" part of this section of the label.~~

~~Where repeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year.~~

~~**Aerial Application**—This product may be applied using aerial spray equipment for silvicultural site preparation, conifer release and~~

~~rights-of-way treatments. See the "APPLICATION EQUIPMENT and TECHNIQUES" part of the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label for information on how to apply this product by air.~~

~~DO NOT APPLY THIS PRODUCT BY AIR TO RIGHTS-OF-WAY SITES IN THE STATE OF CALIFORNIA.~~

~~To reduce the aerial application drift hazard to aquatic sites*, to nontarget sites or any site containing desirable vegetation, always maintain appropriate buffer zones. A buffer zone of the following minimum distances should be maintained:~~

~~• Helicopters using a Microfoil™ boom, a Thru-Valve™ boom (TVB-45), or equivalent drift control systems, should maintain at least a 50-foot buffer zone.~~

~~• When using other aerial equipment:~~

- ~~1. Maintain at least a 75-foot buffer zone for applications using 2 quarts or less per acre of this product.~~
- ~~2. Maintain at least a 125-foot buffer zone for applications using more than 2 quarts per acre of this product.~~
- ~~3. Maintain at least a 400-foot buffer zone for applications on rights-of-way when applied from 75 feet or more above ground level.~~

~~These distances should be increased if conditions favoring drift exist.~~

~~* Aquatic sites include all lakes, ponds and streams used for significant domestic purposes or angling.~~

~~■ SITE PREPARATION ■~~

~~Following preplant applications of this product, any silvicultural species may be planted.~~

~~■ POSTDIRECTED SPRAY ■~~

~~In established silvicultural sites, use as a spray on the foliage of undesirable vegetation. Care must be exercised to avoid contact of spray, drift or mist with foliage or green bark of desirable species.~~

~~■ CONIFER RELEASE ■~~

~~For release, apply only where conifers have been established for~~

~~more than one year. Vegetation should not be disturbed prior to treatment or until visual symptoms appear after treatment. Symptoms of treatment are slow to appear, especially in woody species treated in late fall. Injury may occur to conifers treated for release, especially where spray patterns overlap or the higher rates are applied or when applications are made during periods of active conifer growth. Do not use additional surfactant with conifer release applications.~~

~~Applications must be made after formation of final conifer resting buds in the fall or prior to initial bud swelling in spring. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Use the following rates for conifer release to control or partially control the weeds listed in the 'WEEDS CONTROLLED' section of this label.~~

~~For release of the following conifer species:~~

~~Douglas fir~~

~~—*Pseudotsuga menziesii*~~

~~Fir~~

~~—*Abies* spp.~~

~~Hemlock~~

~~—*Tsuga* spp.~~

~~Pines*~~

~~—*Pinus* spp.~~

~~Spruce~~

~~—*Picea* spp.~~

~~* Includes all species except eastern white pine, loblolly pine or slash pine.~~

~~Apply 1.5 to 2 quarts of this product per acre except in Washington and Oregon, west of the crest of the Cascade Mountains. For spring treatments west of the crest of the Cascade Mountains, apply 1 quart of this product per acre before conifer bud swell for control of annual weeds. For fall treatments in Washington and Oregon, west of the crest of the Cascade Mountains, apply 1 to 1.5 quarts of this product per acre before any major leaf drop of deciduous species.~~

~~For release of western hemlock, apply 1 quart of this product per acre.~~

~~For release of the following conifer species:~~

~~Loblolly pine~~

~~—*Pinus taeda*~~

Eastern white pine

~~— Pinus strobus~~

Slash pine

~~— Pinus elliottii~~

~~Late Season Application—Apply 1.5 to 2 quarts of this product in a minimum of 5 gallons of spray solution per acre during early autumn. Applications made prior to September 1 or when conditions are conducive to rapid growth of conifers will create the potential for increased injury in the form of tip and/or needle burn. Injury may decrease with later applications. Some autumn colors are acceptable at time of application. Apply prior to frost or leaf drop of undesirable plants. Applications made according to label directions will release loblolly pine, eastern white pine and slash pine by reducing competition from the following species:~~

Ash

~~— Fraxinus spp.~~

Cherry+

~~— Black~~

~~— Prunus serotina~~

~~— Pin~~

~~— Prunus pensylvanica~~

Elm

~~— Ulmus spp.~~

Hawthorn

~~— Crataegus spp.~~

Locust, black

~~— Robinia pseudoacacia~~

Maple, red

~~— Acer rubra~~

Oak+

~~— Black~~

~~— Quercus velutina~~

~~— Post~~

~~— Quercus stellata~~

~~— Southern Red~~

~~— Quercus falcata~~

~~— White~~

~~— Quercus alba~~

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Persimmon

~~—Diospyros spp.~~

Poplar, yellow

~~—Liriodendron tulipifera~~

Sassafras

~~—Sassafras albidum~~

Sourwood

~~—Oxydendrum arboreum~~

Sumac:

~~—Poison~~

~~—Rhus vernix~~

~~—Smooth~~

~~—Rhus glabra~~

~~—Winged~~

~~—Rhus copallina~~

Sweetgum

~~—Liquidambar styraciflua~~

~~Apply only to those sites where woody brush and trees listed in this label constitute the majority of the undesirable species.~~

**Roundup plus Oust Tank Mixtures
for Conifer Release from Herbaceous Weeds**

~~To release loblolly pines from herbaceous weeds, tank mixtures of this product with Oust will provide control of annual weeds listed in the 'WEEDS CONTROLLED' section of this and the Oust label, and partial control of the perennial weeds listed below.~~

~~Apply 16 to 24 fluid ounces of this product with 2 to 4 ounces of Oust in 10 to 30 gallons of spray solution per acre. Make application to actively growing weeds as a broadcast spray over the top of the young loblolly pines.~~

~~This product plus Oust tank mixtures may not be applied by air in California.~~

~~This tank mixture may be applied using aerial equipment. When applying by air, use the recommended rate in 5 to 15 gallons of spray solution per acre.~~

~~For control of annual weeds below 12 inches in height (or runner length on annual vines), use the lower rates of both products. Use the higher rates of both products when annual weeds are in more advanced stages of growth and approaching flower or seed formation.~~

~~Use the higher rates of both products for partial control of the following perennial weeds. Use the lower rates for suppression of growth.~~

Bahiagrass

~~—Paspalum notatum~~

Broomsedge

~~—Andropogon virginicus~~

Dock, curly

~~—Rumex crispus~~

Dogfennel

~~—Eupatorium capilliflorum~~

Fescue, tall

~~—Festuca arundinacea~~

Johnsongrass*

~~—Sorghum halepense~~

Poorjoe*

~~—Diodia teres~~

Trumpet creeper**

~~—Campsis radicans~~

Vaseygrass

~~—Paspalum urvillei~~

Vervain, blue

~~—Verbena hastata~~

~~*Control at the higher rates.~~

~~**Suppression at the higher rates only.~~

~~Pine damage may occur or can be accentuated if treatment takes place when young trees are under stress from drought, flood water, insects or disease.~~

~~Read and observe the cautionary statements and all other information appearing on the labels of all herbicides used.~~

NOTE TO USER

~~This product must not be used in areas where adverse impact on federally designated endangered/threatened plant or aquatic species~~

~~is likely.~~

~~Prior to making applications, the user of this product must determine that no such species are located in or immediately adjacent to the area to be treated.~~

CUT STUMP TREATMENTS

Woody vegetation may be controlled by treating freshly cut stumps of trees and resprouts with this product. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut vegetation close to the soil surface. Apply a 50 to 100 percent solution of this product to the freshly-cut surface immediately after cutting. Delays in application may result in reduced performance. For best results, applications should be made during periods of active growth and full leaf expansion.

When used according to directions for cut stump application, this product will CONTROL, PARTIALLY CONTROL or SUPPRESS many types of woody brush and tree species, some of which are listed below:

Alder

Alnus spp.

Eucalyptus

Eucalyptus spp.

Madrone

Arbutus menziesii

Oak

Quercus spp.

Reed, giant

Arundo donax

Saltcedar

Tamarisk spp.

Sweetgum

Liquidambar styraciflua

Tan Oak

Lithocarpus densiflorus

Willow

Salix spp.

INJECTION AND FRILL APPLICATIONS

Woody vegetation may be controlled by injection or frill application of this product. Apply this product using suitable equipment which must penetrate into the living tissue. Apply the equivalent of 1 ml of this product per each 2 to 3 inches of trunk diameter (DBH). This is best achieved by applying a 50 to 100 percent concentration of this material either to a continuous frill around the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying diluted material to a continuous frill or more closely spaced cuttings. Avoid application techniques that allow runoff to occur from frill or cut areas in species that exude sap freely after frills or cutting. In species such as this, make frill or cut at an oblique angle so as to produce a cupping effect and use undiluted material. For best results, application should be made during periods of active growth and after full leaf expansion.

This treatment WILL CONTROL the following woody species:

Oak

Quercus spp.

Poplar

Populus spp.

Sweetgum

Liquidambar styraciflua

Sycamore

Platanus occidentalis

This treatment WILL SUPPRESS the following woody species:

Black gum

Nyssa sylvatica

Dogwood

Cornus spp.

Hickory

Carya spp.

Maple, red

Acer rubrum

**TURFGRASSES AND GRASSES
FOR SEED PRODUCTION**

■ **PREPLANT AND RENOVATION** ■

When applied as directed for ''NONCROP USES'', under conditions

For specific rates of application and instructions for control of various annual and perennial weeds, and woody brush and trees, see the "WEEDS CONTROLLED" section of this label.

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth listed in the "WEEDS CONTROLLED" section of this label.

Desirable turfgrasses may be planted following the above procedures.

Apply this product to actively growing weeds at the stages of growth recommended in the "WEEDS CONTROLLED" section of this label prior to planting or renovation of turf or forage grass areas grown for seed production.

ANNUAL WEED CONTROL IN DORMANT BERMUDAGRASS AND BAHIA GRASS TURF

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winter annual weeds and tall fescue for effective release of dormant bermudagrass and bahiagrass turf. Refer to the rate table for Roundup alone under the "RELEASE OF BERMUDAGRASS and BAHAGRASS" section of this label for recommended rates and volumes on the species to be suppressed or controlled. Treat only when turf is dormant and prior to spring greenup. Spot treatments or broadcast applications of this product in excess of 16 fluid ounces per acre may result in injury or delayed greenup in highly maintained turfgrass areas; i.e., golf courses, lawns, etc. DO NOT APPLY TANK MIXTURES of this product plus Oust in highly maintained turfgrass areas.

RELEASE OF BERMUDAGRASS OR BAHIAGRASS

NOTE: Use only in areas where bermudagrass or bahiagrass are desirable ground covers and where some temporary injury or discoloration can be tolerated. Use tank mixtures of this product plus Oust only on railroads, highways, utility plant sites, or other right-of-way areas.

When applied as directed for "NONCROP USES" under the conditions described, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant bermudagrass or bahiagrass. This product may be tank-mixed with Oust as recommended for residual control. Make applications to dormant bermudagrass or bahiagrass. Tank mixtures of this product plus Oust may delay greenup. To avoid delays in greenup and minimize injury, do not add more than 1 ounce per acre of Oust on bermudagrass or more than 0.5 ounce per acre on bahiagrass, or treat when these grasses are in a semi-dormant condition.

For best results on winter annuals, treat when plants are in an early growth stage (below 6 inches in height) after most have germinated. For best results on tall fescue, treat when fescue is in or beyond the 4 to 6-leaf stage.

WEEDS CONTROLLED

Rate recommendations for control or suppression of winter annuals and tall fescue are listed below:

Apply the recommended rates of this product alone or as a tank mixture in 10 to 25 gallons of water, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre.

For the best recommendation for the mixture of weeds within your geographic area, contact your Monsanto sales representative.

**WEEDS CONTROLLED OR SUPPRESSED
WITH Roundup ALONE***

NOTE: C = Control
S = Suppression

WEED SPECIES	Roundup FLUID OZ/ACRE					
	8	12	16	24	32	64
Barley, little <i>Hordeum pusillum</i>	S	C	C	C	C	C
Bedstraw, catchweed <i>Galium aparine</i>	S	C	C	C	C	C
Bluegrass, annual <i>Poa annua</i>	S	C	C	C	C	C
Chervil <i>Chaerophyllum tainturieri</i>	S	C	C	C	C	C
Chickweed, common <i>Stellaria media</i>	S	C	C	C	C	C
Clover, crimson <i>Trifolium incarnatum</i>	•	S	S	C	C	C
Clover, large hop <i>Trifolium campestre</i>	•	S	S	C	C	C
Fescue, tall <i>Festuca arundinaceae</i>	•	•	•	•	S	S
Geranium, Carolina <i>Geranium carolinianum</i>	•	•	S	S	C	C
Henbit <i>Lamium amplexicaule</i>	•	S	C	C	C	C
Ryegrass Italian <i>Lolium multiflorum</i>	•	•	S	C	C	C
Speedwell, corn <i>Veronica arvensis</i>	S	C	C	C	C	C
Vetch, common <i>Vicia sativa</i>	•	•	S	C	C	C

* These rates apply only to sites where an established competitive turf is present.

**WEEDS CONTROLLED OR SUPPRESSED
WITH Roundup PLUS OUST***

NOTE: C = Control
S = Suppression

		Roundup + OUST						
WEED SPECIES	Roundup (FL. OZ/A)	8	12	12	16	16	12	16
	+ OUST (OZ/A)	+	+	+	+	+	+	+
		4	4	4	4	4	1	1
Barley, little <i>Hordeum pusillum</i>		C	C	C	C	C	C	C
Bedstraw, catchweed <i>Galium aparine</i>		C	C	C	C	C	C	C
Bluegrass, annual <i>Poa annua</i>		S	C	C	C	C	C	C
Chervil <i>Chaerophyllum tainturieri</i>		C	C	C	C	C	C	C
Chickweed, common <i>Stellaria media</i>		S	C	C	C	C	C	C
Clover, crimson <i>Trifolium incarnatum</i>		S	S	S	S	C	C	C
Clover, large hop <i>Trifolium campestre</i>		.	.	S	S	S	C	C
Fescue, tall <i>Festuca arundinaceae</i>		S	S
Geranium, Carolina <i>Geranium carolinianum</i>		.	S	S	C	C	C	C
Henbit <i>Lamium amplexicaule</i>		.	S	C	C	C	C	C
Ryegrass, Italian <i>Lolium multiflorum</i>		.	S	S	C	C	C	C

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Speedwell, corn <i>Veronica arvensis</i>	S	C	C	C	C	C	C
Vetch, common <i>Vicia sativa</i>	C	C	C	C	C	C	C

- * These rates or mixtures of rates apply only to sites where an established competitive turf is present.

RELEASE OF ACTIVELY GROWING BERMUDAGRASS

When applied as directed, this product will aid in the release of bermudagrass by providing control of annual species listed in the 'WEEDS CONTROLLED' section of this and the Oust label, and suppression or partial control of certain perennial weeds.

For control or suppression of those annual species listed on this label, use 1 to 3 pints of this product as a broadcast spray in 10 to 25 gallons of spray solution per acre. Use the lower rate when treating annual weeds below 6 inches in height (or length of runner in annual vines). Use the higher rate as weeds increase in size or as they approach flower or seedhead formation.

Use the higher rate of this product for partial control of the following perennial species. Use the lower rates for suppression of growth. For best results, see the 'WEEDS CONTROLLED' section of this label for proper stage of growth.

Bahiagrass

Paspalum notatum

Bluestem, silver

Andropogon saccharoides

Fescue, tall

Festuca arundinacea

Johnsongrass*

Sorghum halepense

Trumpet creeper**

Campsis radicans

Vaseygrass

Paspalum urvillei

*Control at the higher rates.

**Suppression at higher rates only.

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This product may be tank-mixed with Oust. If tank-mixed, use no more than 1 to 2 pints per acre of this product with 1 to 2 ounces of Oust per acre.

Use the lower rates of both mixtures to control annual weeds below 6 inches in height (or runner length in annual vines) that are listed in the "WEEDS CONTROLLED" section of this booklet and the Oust label. Use the higher rates as annual weeds increase in size and approach the flower or seedhead stages.

Use the higher rates of this product to provide partial control of the following perennial weeds. Use the lower rates for suppression of growth.

Bahiagrass

Paspalum notatum

Bluestem, silver

Andropogon saccharoides

Broomsedge

Andropogon virginicus

Dock, curly

Rumex crispus

Dogfennel

Eupatorium capilliflorum

Fescue, tall

Festuca arundinacea

Johnsongrass*

Sorghum halepense

Poorjoe**

Diodia teres

Trumpetcreeper*

Campsis radicans

Vaseygrass

Paspalum urvillei

Vervain, blue

Verbena hastata

*Suppression at higher rates only.

**Control at the higher rates.

Use only on well-established bermudagrass. Bermudagrass injury may

result from the treatment but regrowth will occur under moist conditions. Repeat applications in the same season are not recommended, since severe injury may result.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

COOL SEASON TURF GROWTH REGULATION

When applied as directed, this product will suppress growth and seedhead development of listed turf species in industrial sites.

This product is recommended for management of coarse turf on roadside rights-of-way or other industrial areas. Do not use on high-quality turf or other areas where some turf color changes cannot be tolerated. Slight turf discoloration may occur but turf will regreen and regrow under moist conditions as effects of this product wear off.

Apply 4 to 6 fluid ounces of this product per acre alone or in a recommended tank mixture. Spray volumes of 10 to 40 gallons per acre are recommended.

When using this product, mix 2 quarts of a nonionic surfactant per 100 gallons of spray solution.

This product can be used for growth and seedhead suppression of:

**Tall Fescue
Smooth Brome**

For best results, apply this product in a recommended tank mixture to actively growing turfgrasses after greenup in the spring of the year. For suppression of seedheads, applications must be made before boot-to-seedhead stage of development. Applications made from seedhead emergence until maturity may result in turf discoloration or injury.

After mowing or removal of seedheads, this product in a recommended tank mixture may also be used to suppress the growth of certain turfgrasses. Allow turf to recover from stress caused by heat, drought or mowing before making applications. Applications made to turf under stress may increase the potential for discoloration or injury.

ANNUAL GRASSES

For growth suppression of some annual grasses such as annual

ryegrass, wild barley and wild oats, apply 3 to 4 fluid ounces of this product in 10 to 40 gallons of spray solution per acre. Applications should be made when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments made after seedhead emergence may cause injury to the desired grasses.

TANK MIXTURES

For the following tank mixtures, consult each product label for weeds controlled and the correct stage of application. Do not treat turf under stress.

Tank mixtures plus 2,4-D Amine

For additional weed control benefits, up to 1 pound a.i. per acre of 2,4-D amine may be added to the following tank mixtures. Consult the label for 2,4-D amine for weeds controlled.

TALL FESCUE

Roundup plus Telar™

For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.5 ounce of Telar per acre.

This tank mixture can also be applied after mowing or removal of tall fescue seedheads for turf growth suppression. Make only one of the above applications per growing season.

Roundup plus Oust

For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

Roundup plus Escort™

This tank mixture can be applied after mowing or removal of tall fescue seedheads for turf growth suppression and control or partial control of some annual weeds. Use up to 1/3 ounce of Escort per acre.

NOTE: This product is not registered for use with Escort in California.

SMOOTH BROME

Roundup plus Oust

For suppression of smooth brome growth and seedheads and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

BAHIAGRASS SEEDHEAD AND VEGETATIVE SUPPRESSION

When applied as directed in the indicated noncrop areas (roadsides, airports, golf course roughs, and plant sites), this product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with single applications and approximately 120 days with sequential applications.

Apply this product 1 to 2 weeks after full greenup of bahiagrass or after the bahiagrass has been mowed to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 fluid ounces per acre of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume may be made at approximately 45 day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product per acre plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces per acre plus nonionic surfactant may be made approximately 45 days after the last application.

A tank mixture of this product plus Oust **may be applied only on roadsides** for seedhead inhibition and vegetative suppression. Apply 6 fluid ounces per acre of this product plus 0.25 ounce per acre of Oust, plus 0.5 to 1 percent nonionic surfactant by total spray volume 1 to 2 weeks following an initial spring mowing. When using this product plus Oust for suppression of bahiagrass, make only 1 application per year.

CROPPING SYSTEMS

When applied as directed for "'CROPPING SYSTEMS'", under the conditions described, this product controls annual and perennial weeds listed on this label, prior to the emergence of direct seeded crops or prior to transplanting of crops listed on this label.

See "'GENERAL INFORMATION'" and "'MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'" sections of this label for essential product performance information.

See the following "'CROPPING SYSTEMS'" sections for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS OR FRUIT OF DESIRABLE CROPS, PLANTS, TREES OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Except as otherwise specified on this label, repeat treatments must be made before the crop emerges in accordance with the instructions of this label.

Except as otherwise specified in a crop section of this label, the combined total of all treatments must not exceed 8 quarts per acre of this product per year.

~~Do not plant subsequent crops other than those on the label or 30 days following application.~~

~~For any crop not listed below, applications must be made at least 30 days prior to planting.~~

Do not harvest or feed treated vegetation for 8 weeks following application. Following spot treatment or selective equipment use, allow 14 days before grazing domestic livestock or harvesting forage grasses and legumes.

ROW CROPS

CORN (ALL) *
COTTON*
PEANUTS
SORGHUM (MILO) *
SOYBEANS*
SUGARCANE*

CEREAL GRAINS

BARLEY*
BUCKWHEAT*
MILLET (PEARL, PROSO)*
OATS*
RICE**
RYE*
TRITICALE*
WHEAT (ALL)*
WILD RICE*

CITRUS

CALAMONDIN
CHIRONJA
CITRON
GRAPEFRUIT
KUMQUAT
LEMON
LIME
MANDARIN ORANGE
ORANGE (ALL)
PUMMELO
TANGELO
TANGERINE
TANGORS

TREE NUTS

ALMOND
BEECHNUT
BRAZIL NUT
BUTTERNUT
CASHEW
CHESTNUT
CHINQUAPIN
FILBERT (HAZELNUT)
HICKORY NUT
MACADAMIA
PECAN
PISTACHIO
WALNUT (BLACK, ENGLISH)

VINE CROPS

GRAPES
KIWI FRUIT

TREE FRUITS

APPLE

APRICOTS
CHERRY (SWEET, SOUR)
LOQUAT
MAYHAW
NECTARINE
OLIVE
PEACH
PEAR
PLUM/PRUNE (ALL)
QUINCE

VEGETABLES

ARTICHOKE,
JERUSALEM
ASPARAGUS*
BEANS (ALL)
BEET GREENS
BEETS (RED, SUGAR)
BROCCOLI (ALL)
BRUSSELS SPROUTS
CABBAGE (ALL)
CABBAGE, CHINESE
CANTALOUPE***
CARROT
CAULIFLOWER
CASABA MELON***
~~CELERY~~
CELERY
CHARD, SWISS
CHICORY
COLLARDS
CRENSHAW MELON***
CUCUMBER***
EGGPLANT***
ENDIVE
GARLIC***
GOURDS***
GROUND CHERRY***
HONEYDEW MELON***
HONEY BALL MELON***
HORSERADISH
KALE
KOHLRABI
LEEK
LENTILS
LETTUCE
MANGO MELON***
MELONS (ALL)***
MUSKMELON***
MUSTARD GREENS
OKRA

ONION
RAPE GREENS
PARSLEY
PARSNIPS
PEAS (ALL)
PEPPER (ALL)***
PERSIAN MELON***
POTATO (IRISH, SWEET)
PUMPKIN***
RADISH
RHUBARB
RUTABAGA
~~SHALLOT~~
SPINACH (ALL)
SQUASH (SUMMER, WINTER)***
TOMATILLO***
TOMATO***†
TURNIP
WATERCRESS***
WATERMELON***
YAMS

SMALL FRUITS AND BERRIES

BLACKBERRY
BLUEBERRY
BOYSENBERRY
CRANBERRY
CURRANT
DEWBERRY
ELDERBERRY
GOOSEBERRY
HUCKLEBERRY
LOGANBERRY
OLALLIEBERRY
RASPBERRY (BLACK, RED)

FORAGE CROPS AND LEGUMES

ALFALFA*
FORAGE GRASSES*
FORAGE LEGUMES*

TROPICAL CROPS

ACEROLA
ATEMOYA
AVOCADO
BANANA (PLANTAINS)
BREADFRUIT
CANISTEL
CARAMBOLA

CHERIMOYA
COCOA BEANS
COFFEE
DATES
FIGS
GENIP
GUAVA
JABOTICABA
JACKFRUIT
LONGAN
LYCHEE
MANGO
PAPAYA
PASSION FRUIT
PERSIMMONS
PINEAPPLE****
POMEGRANATE
SAPODILLA
SAPOTE (BLACK, MAMEY, WHITE)
SOURSOP
SUGAR APPLE
TAMARIND
TEA

- * Spot treatments may be applied in these crops.
- ** Do not treat rice fields or levees when the fields contain flood water.
- *** Apply only prior to planting. Allow at least 3 days between application and planting.
- ****Do not feed or graze treated pineapple forage following application.
- † Use is restricted to direct seeded crops only.

When applying this product prior to transplanting crops into plastic mulch, care must be taken to remove residues of this product from the plastic prior to transplanting. Residues can be removed by 0.5 inch natural rainfall or by applying water via a sprinkler irrigation system.

Spot Treatment (Only those crops with ''*'' can be spot treated.)-Applications in growing crops must be made prior to heading of small grains and milo, initial pod set in soybeans, silking of corn, or boll opening on cotton.

For forage grasses and forage legumes see ''SPOT TREATMENT'' in the

'PASTURES' section of 'CROPPING SYSTEMS' in this label.

For dilution and rates of application using boom or hand-held equipment, see 'MIXING, ADDITIVES and APPLICATION INSTRUCTIONS' and 'WEEDS CONTROLLED' sections of this label.

NOTE: FOR FORAGE GRASSES AND FORAGE LEGUMES, NO MORE THAN ONE-TENTH OF ANY ACRE SHOULD BE TREATED AT ONE TIME. FOR ALL OTHER CROPS, DO NOT TREAT MORE THAN 10 PERCENT OF THE TOTAL FIELD AREA TO BE HARVESTED.

THE CROP RECEIVING SPRAY IN TREATED AREA WILL BE KILLED. TAKE CARE TO AVOID DRIFT OR SPRAY OUTSIDE TARGET AREA FOR THE SAME REASON.

Selective Equipment—This product may be applied through recirculating sprayers, shielded applicators or wiper applicators in cotton and soybeans. Shielded and wiper applicators may also be used in tree crops and grapes. Wiper applicators may be used in wheat, rutabagas, forage grasses and forage legumes, including pasture sites and grain sorghum (milo).

See the 'SELECTIVE EQUIPMENT' part of the 'APPLICATION EQUIPMENT and TECHNIQUES' section of this label for information on proper use and calibration of this equipment.

Allow at least the following time intervals between application and harvest:

Cotton, Soybeans	7 days
Apples, Atemoya, Avocado, Breadfruit, Canistel, Carambola, Cherry, Citrus, Grapes, Dates, Jaboticaba, Jackfruit, Longan, Lychee, Passion Fruit, Pear, Persimmons, Rutabagas, Sapodilla, Sapote, Soursop, Sugar Apple, Tamarind	14 days
Stone Fruit	17 days
Nut Crops, except pistachios	21 days 3 days
Pistachio nuts	21 days
Wheat	35 days
Sorghum (milo)*	40 days

* Do not use roller applicators. Do not feed or graze treated milo fodder. Do not ensile treated vegetation.

Do not use roller applicators.

Do not feed or graze treated milo fodder. Do not ensile treated vegetation.

ASPARAGUS

When applied as directed for "'CROPPING SYSTEMS'" under the conditions described, this product controls weeds listed on this label in asparagus.

For specific rates of applications and instructions for control of various annual and perennial weeds, see the "'WEEDS CONTROLLED'" section of this label.

Prior to Crop Emergence—Apply this product prior to crop emergence for the control of emerged labeled annual and perennial weeds. DO NOT APPLY WITHIN A WEEK BEFORE THE FIRST SPEARS EMERGE.

Spot Treatment—Apply this product immediately after cutting, but prior to the emergence of new spears. Do not treat more than 10 percent of the total field area to be harvested. Do not harvest within 5 days of treatment.

Postharvest—Apply this product after the last harvest and all spears have been removed. If spears are allowed to regrow, delay application until ferns have developed. Delayed treatments should be applied as directed or shielded spray in order to avoid contact of the spray with ferns, stems or spears. Direct contact of the spray with the asparagus may result in serious crop injury.

NOTE: Select and use recommended types of spray equipment for postemergence postharvest applications. A directed spray is any application where the spray pattern is aligned in such a way as to avoid direct contact of the spray with the crop. A shielded spray is any application where a physical barrier is positioned and maintained between the spray and the crop to prevent contact of spray with the crop.

BERRIES AND SMALL FRUITS

~~For cranberries, apply after fruit set and no later than 30 days before harvest.~~

~~For other berries, apply as a preplant broadcast application, or as a directed spray or wiper application post-planting.~~

~~Wiper applicators may be used in cranberries in accordance with instructions in this section.~~

~~Wiper applicators may be used in cranberries in accordance with instructions in this section.~~

~~For other berries, apply as a preplant broadcast application, or as a directed spray or wiper application post-planting.~~

See "'GENERAL INFORMATION'" and "'MIXING, ADDITIVES and APPLICATION

INSTRUCTIONS'' sections of this label for essential product performance information.

See the ''SELECTIVE EQUIPMENT'' part of the ''APPLICATION EQUIPMENT and TECHNIQUES'' section of this label for information on recommended use and calibration of this equipment.

~~Allow a minimum of 14 days between last application and harvest of small fruits and berries.~~

~~Allow a minimum of 30 days between last application and harvest of cranberries. For other small fruits and berries, allow a minimum of 14 days between last application and harvest.~~

~~For Wick or other Wiper Applicators-Mix 1 gallon of this product in 4 gallons of water to prepare a 20 percent solution. Apply the solution to emerged weeds. Apply after cranberry fruit set and no later than 30 days before harvest.~~

In severe infestations, reduce equipment ground speed to ensure that adequate amounts of this product are wiped on the weeds. A second treatment in the opposite direction may be beneficial.

Do not permit herbicide solution to contact desirable vegetation, including green shoots, canes or foliage.

FALLOW AND REDUCED TILLAGE SYSTEMS

FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO SUPPLEMENTAL LABEL.

Use this product in fallow and reduced tillage systems for control of annual weeds prior to emergence of crops listed in this label. Refer to the ''WEEDS CONTROLLED'' section of this label for specific rates and instructions. This product may be applied using ground or aerial spray equipment. See the ''APPLICATION EQUIPMENT and TECHNIQUES'' section of this label for instructions.

■ TANK MIXTURES ■

■ Roundup plus BANVEL
plus NONIONIC SURFACTANT ■

■ Roundup plus 2,4-D
plus NONIONIC SURFACTANT ■

■ Roundup plus GOALTM
plus NONIONIC SURFACTANT ■

DO NOT APPLY BANVEL OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA.

Applications of 2,4-D or Banvel must be made at least 7 days prior to planting corn.

The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed species. Some crop injury may occur if Banvel is applied within 45 days of planting. Refer to the Banvel and 2,4-D labels for cropping restrictions and other use instructions.

Roundup plus Goal Tank Mixtures

This product alone or in tank mixtures with Goal plus 0.5 to 1 percent nonionic surfactant by total spray volume will provide control of those weeds listed below.

Make applications when weeds are actively growing and at the recommended stages of growth. Avoid spraying when weeds are subject to moisture stress, when dust is on the foliage or when straw canopy covers the weeds.

Roundup 12 fluid oz/acre

Wheat	18"*
Barley	12"
Bluegrass,	
annual	6"
Barneyardgrass	6"
Rye	6"

Roundup 16 fluid oz/acre

Annual grasses at
left plus:

Ryegrass,	
annual	6"
Chickweed	6"
Groundsel	6"
Marestail	6"
Rocket, London	6"
Shepherdspurse	6"
Crabgrass	12"
Johnsongrass,	
seedling	12"
Lambsquarters	12"
Oats, wild	12"

Pigweed, redroot	12"
Mustards	12"

NOTE: Use 32 fluid ounces of this product per acre where heavy weed densities exist.

Roundup 12 fluid oz/acre + GOAL** 2 to 4 fluid oz/acre		Roundup 16 fluid oz/acre + GOAL** 2 to 4 fluid oz/acre	
Annual grasses above plus:		Annual weeds above plus:	
Cheeseweed, common	3"	Cheeseweed, common	6"
Chickweed	3"	Groundsel	6"
Groundsel	3"	Chickweed	12"
Rocket, London	6"	Rocket, London	12"
Shepherdspurse	6"	Shepherdspurse	12"

NOTE: Use 32 fluid ounces of this product per acre in mixtures with 2 to 4 fluid ounces of Goal per acre where heavy weed densities exist.

- * Maximum height or length in inches.
- ** Use the higher rate of Goal when weeds approach maximum recommended height or stands are dense.

These recommended tank mixtures may be applied using ground or aerial spray equipment. Refer to the "WEEDS CONTROLLED" section of this label for specific rates and instructions.

ECOFARMING SYSTEMS

The recommendations made in this section are not registered for use in California.

The Ecofarming System consists of the following rotation: winter wheat, corn/sorghum, ecofallow.

Use the following tank mixtures for control of emerged annual weeds before planting corn or sorghum in the Ecofarming System.

Roundup at 16 to 20 fluid ounces per acre
plus
2,4-D at 0.375 to 0.5 pound a.i. per acre

plus
Atrazine at 0.75 to 1 pound a.i. per acre
plus
Lasso® at 2.5 to 3 quarts per acre

The above tank mixture should be applied in 28-0-0 or 32-0-0 liquid fertilizer carrier at 20 to 30 gallons per acre. The liquid fertilizer may be diluted with water to achieve the desired carrier volume.

WEEDS CONTROLLED - The following weeds, up to a maximum height of 4 inches, will be controlled:

Brome, downy
Bromus tectorum

Cheat
Bromus secalinus

Foxtail, green
Setaria viridis

Foxtail, yellow
Setaria lutescens

Kochia*
Kochia scoparia

Lettuce, prickly
Lactuca serriola

Pigweed, redroot
Amaranthus retroflexus

Thistle, Russian
Salsola kali

Wheat, volunteer
Triticum aestivum

*For improved control of kochia, add 4 fluid ounces per acre (0.125 pound a.i. per acre) of Banvel to the above tank mixture.

Risk of crop injury from 2,4-D or Banvel can be reduced by applying this treatment 7 to 14 days before planting.

Refer to the label booklet for Lasso herbicide for preemergence weed control achieved by this tank mixture.

Refer to the specific product labels for crop rotation restrictions and cautionary statements for all products used in these tank mixtures.

AID TO TILLAGE

This product, when used in conjunction with preplant tillage practices, will provide control of downy brome, cheat, volunteer wheat, tansy mustard and foxtail. Apply 8 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make applications when weeds are actively growing and before they are 6 inches in height. Application must be followed by conventional tillage practices no later than 15 days after treatment and before regrowth occurs. Allow at least 1 day after application before tillage. Tank mixtures with residual herbicides may result in reduced performance.

POSTHARVEST GRAIN SORGHUM SORGHUM REGROWTH CONTROL



PASTURES

Apply this product prior to planting forage grasses and legumes.

Pasture or Hay Crop Renovation—When applied as a broadcast spray, this product controls the annual and perennial weeds listed in this label prior to planting forage grasses or legumes. Remove domestic livestock before application and wait 8 weeks after application before grazing or harvesting.

Spot Treatment—When applied as a spot treatment as recommended, this product controls annual and perennial weeds listed in this label which are growing in pastures, forage grasses and forage legumes composed of bahiagrass, bermudagrass, bluegrass, brome, fescue, orchardgrass, ryegrass, timothy, wheatgrass, alfalfa or clover.

Wiper Application—When applied as directed, this product controls or suppresses the weeds listed under "WIPER APPLICATORS" in the

'SELECTIVE EQUIPMENT' section of this label.

For spot treatment and wiper application, apply in areas where the movement of domestic livestock can be controlled. No more than one-tenth of any acre should be treated at one time. Further applications may be made in the same area at 30-day intervals. Remove domestic livestock before application and wait 14 days after application before grazing livestock or harvesting.

SUGARCANE

When applied as directed for 'CROPPING SYSTEMS', under the conditions described, this product controls those emerged annual and perennial weeds listed on this label growing in or around sugarcane or in fields ~~prior to the emergence of plant cane, to be planted to sugarcane.~~ This product will also control undesirable sugarcane.

NOTE: Where repeat treatments are necessary, do not exceed a total of 10.6 quarts of this product per acre per year. Do not apply to vegetation in or around ditches, canals or ponds containing water to be used for irrigation.

Broadcast Treatment—Apply this product in 10 to 40 gallons of water per acre on emerged weeds ~~growing in fields to be planted to sugarcane. prior to the emergence of plant cane.~~

For specific rates of application and instructions for control of various annual and perennial weeds, see the 'WEEDS CONTROLLED' section of this label.

For removal of last stubble or ratoon cane, apply 4 to 5 quarts of this product in 10 to 40 gallons of water per acre to new growth having at least 7 or more new leaves. Allow 7 or more days after application before tillage.

Spot Treatment in or Around Sugarcane Fields—For dilution and rates of application using hand-held equipment, see 'MIXING, ADDITIVES and APPLICATION INSTRUCTIONS' and 'WEEDS CONTROLLED' sections of this label.

For control of volunteer or diseased sugarcane, make a 1 percent solution of this product in water and spray to wet the foliage of vegetation to be controlled.

NOTE: When spraying volunteer or diseased sugarcane, the plants should have at least 7 new leaves.

Avoid spray contact with healthy cane plants since severe damage or destruction may result.

Do not feed or graze treated sugarcane forage following application.

CONSERVATION TILLAGE, MINIMUM TILLAGE AND NO-TILL SYSTEMS
CORN AND SOYBEANS
Tank Mixtures

The recommendations made in this section are not registered for use in California.

When applied as recommended under the conditions described, the tank mixtures listed in this section control many emerged weeds, and give preemergence control of many annual weeds where corn or soybeans will be planted directly into a cover crop, established sod or in previous crop residues.

Refer to specific product labels for crop rotation restrictions and cautionary statements of all products used in these tank mixtures. For mixing instructions, see the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.

Apply these tank mixtures in 10 to 20 gallons of water or 10 to 60 gallons of nitrogen solution per acre before, during or after planting. Do not apply these mixtures after crop emergence.

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution. The addition of 1 to 2 percent dry ammonium sulfate by weight may increase the performance of this product.

NOTE: When using these tank mixtures, do not exceed 4 quarts of this product per acre.

CORN

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

LASSO/ALACHLOR
LARIATO®
BULLETO®
DUAL™
BICEP™
PARTNER® *

ATRAZINE
CYANAZINE
SIMAZINE
PROWL™
MICRO-TECH®

For improved burndown, this product may be tank-mixed with 2,4-D or dicamba. Applications of 2,4-D or dicamba must be made at least 7 days prior to planting corn. See the "WEEDS CONTROLLED" section for specific rate information.

~~* Partner herbicide is not registered in California~~

SOYBEANS

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

CANOPY™	LOROX™ PLUS
COMMAND™	PREVIEW™
DUAL	PROWL
GEMINI™	TURBO™
LISSO/ALACHLOR	SCEPTER™
LEXONE™	SENCOR™
LINURON	SQUADRON™
PURSUIT™	PURSUIT PLUS™
PARTNER	MICRO-TECH®

For improved burndown, this product may be tank-mixed with the following herbicides:

2,4-DB
2,4-D*

* See the label for 2,4-D for intervals between application and planting.

CORN AND SOYBEANS

Annual Weeds--For difficult-to-control weeds such as fall panicum, barnyardgrass, crabgrass, shattercane and broadleaf signalgrass up to 2 inches tall, and Pennsylvania smartweed up to 6 inches tall, apply this product at 2 pints per acre in these tank mixtures. For other labeled annual weeds, apply 1 to 1.5 pints of this product per acre when weeds are less than 6 inches tall, and 2 to 3 pints when weeds are over 6 inches tall. For a complete list of annual weeds controlled, see the "WEEDS CONTROLLED" section of this label.

Perennial Weeds--At normal application times in minimum tillage systems, perennial weeds may not be at the proper stage of growth for control. See the "WEEDS CONTROLLED" section of this label for the proper stage of growth for perennial weeds.

Use of 2 to 4 quarts of this product per acre in the tank mixtures mentioned above, under these conditions provides top kill and reduces competition from many emerged perennial grass and broadleaf weeds. For emerged perennial weeds controlled, see the "WEEDS CONTROLLED" section of this label.

To obtain the desired stage of growth, it may be necessary to apply this product alone in the late summer or fall and then follow with a label-approved, seedling weed-control program at planting.

USE OF THESE TANK MIXTURES FOR BERMUDAGRASS OR JOHNSONGRASS CONTROL IN MINIMUM TILLAGE SYSTEMS IS NOT RECOMMENDED. For bermudagrass control, follow the instructions under "CONTROL OF PERENNIAL WEEDS" section of this label and then use a label-approved, seedling weed-control program in a minimum tillage or conventional tillage system. For Johnsongrass control, follow instructions under "CONTROL OF PERENNIAL WEEDS" section of this label, and then use a label-approved, seedling weed-control program with conventional tillage.

PREHARVEST APPLICATIONS

When applied as directed under the conditions described, this product controls annual and perennial weeds listed on this label prior to the harvest of ~~cotton and soybeans.~~ ~~cotton, soybeans and wheat.~~

~~For specific rates and application instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.~~

~~NOTE: Do not apply to crops grown for seed. Reduction in germination or vigor may occur.~~

~~The use of this product for preharvest wheat or soybeans is not registered in California.~~

SOYBEANS

Apply after pods have set and lost all green color. Allow a minimum of 7 days between application and harvest of soybeans. Care should be taken to avoid excessive seed shatter loss due to ground application equipment.

total spray volume in 3 to 10 gallons of water per acre to bermudagrass up to 6 inches in height and no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Sequential applications may be made when regrowth occurs and bermudagrass injury and stand reduction can be tolerated.

Cool Season Grass Covers

For suppression of tall fescue, fine fescue, orchardgrass and quackgrass, apply 8 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. For best suppression, add ammonium sulfate to the spray solution at a rate of 2 percent by weight or 17 pounds per 100 gallons of spray solution.

For suppression of Kentucky bluegrass covers, apply 6 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant. Do not add ammonium sulfate.

For best results, mow cool-season grass covers in the spring to even their height and apply the recommended rate of this product 3 to 4 days after mowing. Avoid treating cool season grass covers under poor growing conditions, such as drought stress (drip irrigation), disease or insect damage.

LOW VOLUME APPLICATION (FLORIDA AND TEXAS)

For burndown or control of the weeds listed, apply the recommended rates of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 30 gallons of water per acre. Where weed foliage is dense, use 10 to 30 gallons of water per acre.

Annual Weeds

Goatweed--Apply 2 to 3 quarts per acre of this product plus 17 pounds of ammonium sulfate per 100 gallons of water plus 0.5 to 1 percent nonionic surfactant by total spray volume. Apply in 20 to 30 gallons of water per acre when plants are actively growing. Use 2 quarts per acre when plants are less than 8 inches tall and 3 quarts per acre when plants are greater than 8 inches. If goatweed is greater than 8 inches tall, the addition of Krovar II or Karmex may improve control. Use labeled rates for these residual products.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the Krovar II and Karmex labels.

Perennial Weeds

Apply when weeds are actively growing and at the growth stages listed in the "PERENNIAL WEEDS CONTROLLED" section of this label. If perennial weeds are mowed, allow weeds to regrow to the

Do not graze or harvest treated crop for livestock feed within 25 days of last preharvest application.

DO NOT APPLY MORE THAN 6 QUARTS PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS.

~~DO NOT APPLY MORE THAN 1 QUART PER ACRE OF THIS PRODUCT BY AIR.~~

~~For specific rates and application instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of the Roundup label booklet.~~

~~This product may be applied by both ground and aerial application equipment. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of the Roundup label booklet for instructions for ground and aerial applications.~~

~~NOTE: It is not recommended that soybeans grown for seed be treated because a reduction in germination or vigor may occur.~~

~~The use of this product for preharvest soybeans is not registered in California.~~

COTTON

Broadcast Applications--This product may be applied using either aerial or ground spray equipment. For ground applications with broadcast equipment, apply this product in 10 to 20 gallons of water per acre. For aerial applications, apply this product in 3 to 10 gallons of water per acre.

~~FOR AERIAL APPLICATIONS, REFER TO THE "APPLICATION EQUIPMENT AND TECHNIQUES" AND "AERIAL EQUIPMENT" SECTIONS OF THIS LABEL.~~

~~FOR AERIAL APPLICATIONS IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.~~

~~DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR.~~

~~**Weed Control**--For specific rates of application and instructions for control of various annual and perennial weeds for this product used alone or in the following tank mixtures, see the "WEEDS CONTROLLED" section of this label.~~

~~To control Johnsongrass using multiple directed or broadcast over-the-top spray equipment, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20~~

~~gallons of water per acre. Ensure complete coverage.~~

~~For partial control of field bindweed, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre. Apply when bindweed is actively growing and 12 inches or greater in length. Reduced performance may result if bindweed is under drought stress.~~

TANK MIXTURES

~~Roundup plus DEFTM 6
Roundup plus FolexTM
Roundup plus PrepTM
Roundup plus Prep plus DEF 6 or Folex~~

~~When applied as recommended under the conditions described, these tank mixtures control annual and perennial weeds listed on this label prior to the harvest of cotton. For application guidelines, precautions and use rates, refer to the DEF, Folex and Prep labels.~~

~~This product when tank mixed with DEF 6 or Folex defoliants may provide enhancement of cotton leaf drop and regrowth inhibition.~~

~~**Timing of Application**—Apply this product or these tank mixtures for preharvest weed control after 60 percent of the cotton bolls have opened.~~

~~NOTE: DO NOT APPLY TO CROPS GROWN FOR SEED. Allow a minimum of 7 days between application and harvest. Do not feed or graze treated cotton forage or hay following preharvest applications.~~

~~This product provides weed control and cotton regrowth inhibition when applied prior to the harvest of cotton. Apply 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for cotton regrowth inhibition.~~

~~This product may be tank mixed with DEFTM 6, FolexTM, or PrepTM to provide additional enhancement of cotton leaf drop.~~

~~Allow a minimum of 7 days between application and harvest of cotton.~~

~~Apply after sufficient bolls have developed to produce the desired yield of cotton. Applications made prior to this time could affect maximum yield potential.~~

~~Do not feed or graze treated cotton forage or hay following preharvest applications.~~

WHEAT

Apply after the hard-dough stage of grain (30% or less grain moisture) and at least 7 days prior to harvest.

DO NOT APPLY MORE THAN 1 QUART PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS TO WHEAT.

TREE AND VINE CROPS

This product is recommended for weed control in established groves, vineyards, and orchards, or for site preparation prior to transplanting crops listed in this section. Applications may be made with boom equipment, CDA, shielded sprayers, hand-held and high-volume wands, lances, orchard guns or with wiper applicator equipment, except as directed in this section. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for specific information on use of equipment.

When applying this product, refer to the "WEEDS CONTROLLED" section of this label and to specific recommendations in this section for rates to be used.

NOTE

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual weed control. For subsequent weed control, use repeated applications of this product. Do not apply more than 10.6 quarts of this product per acre per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

AVOID PAINTING OUT STUMPS WITH THIS PRODUCT AS INJURY RESULTING FROM ROOT GRAFTING MAY OCCUR IN ADJACENT TREES.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

For specific rates of applications and instructions, see the "WEEDS CONTROLLED" section of this label, and to specific recommendations which follow.

MIDDLES MANAGEMENT

FOR ANNUAL WEEDS IN MIDDLES BETWEEN ROWS OF TREE AND VINE CROPS

For citrus crops, treat uniformly between trees.

■ **Roundup** ■
■ **Roundup plus GOAL** ■

This product alone or in mixtures with Goal will control or suppress the annual weeds listed below.

Apply the recommended rates of this product, either alone or in mixtures with Goal, plus 0.5 to 1 percent nonionic surfactant by spray volume in 3 to 10 gallons of water per acre. Apply when weeds are actively growing and less than 6 inches in height or diameter. If weeds are under drought stress, irrigate prior to application. Reduced control may occur if weeds have been mowed prior to application. Up to 48 fluid ounces per acre of this product may be used to control weeds, which have been mowed, are stressed or are growing in dense populations.

WEED SPECIES	MAXIMUM HEIGHT/DIAMETER (INCHES)	RATE PER ACRE	
		Roundup (FLUID OUNCES)	GOAL (FLUID OUNCES)
Barley <i>Hordeum vulgare</i>	6	8	--
Bluegrass, annual <i>Poa annua</i>			
Barnyardgrass <i>Echinochloa crus-galli</i>	6	12	--
Chickweed, common <i>Stellaria media</i>			
Red Maids <i>Calandrinia ciliata</i>			
Crabgrass <i>Digitaria</i> spp.	6	16	--
Fleabane, flaxleaf hairy <i>Conyza bonariensis</i>			OR
Groundsel, common <i>Senecio vulgaris</i>		16 to 32	+ 4 to 16**
Junglerice <i>Echinochloa colonum</i>			

Lambsquarters, common
Chenopodium album
 Pigweed, redroot
Amaranthus retroflexus
 Rocket, London
Sisymbrium irio
 Ryegrass, common
Lolium multiflorum
 Shepherdspurse
Capsella bursa-pastoris
 Sowthistle, annual
Sonchus oleraceus

Cheeseweed, common	3	12 to 32	+	4 to 16
<i>Malva spp.</i>				

Cheeseweed, common	6	16 to 32	+	4 to 16
<i>Malva spp.</i>				

Filaree*
Erodium spp.

Horseweed/Marestail
Conyza canadensis

Nettle, stinging
Urtica dioica

Purselane, common*
Purtulaca oleracea

* Suppression only.

**The mixture of this product plus Goal is recommended when weeds are stressed or growing in dense populations.

STRIPS

FOR ANNUAL AND PERENNIAL WEEDS IN STRIPS
 OF TREE AND VINE CROPS

■ TANK MIXTURES WITH RESIDUAL HERBICIDES ■

When applied as a tank mixture, this product provides control of the emerged annual weeds and control or suppression of emerged perennial weeds listed in this label. The following residual herbicides will provide preemergence control of those weeds listed in the individual product labels.

■ Roundup plus GOAL 1.6E ■

■ Roundup plus KARMEX™ DF ■

■ Roundup plus KROVAR I ■

■ Roundup plus KROVAR II ■

■	Roundup plus SIMAZINE, PRINCEP CALIBER 90	■
■	Roundup plus SIMAZINE 4L	■
■	Roundup plus SIMAZINE 80W	■
■	Roundup plus SOLICAM™ 80DF	■
■	Roundup plus SURFLAN AS	■
■	Roundup plus SURFLAN 75W	■
■	Roundup plus SIMAZINE (80W, or 4L, or PRINCEP CALIBER 90) plus SURFLAN (AS or 75W)	■
■	Roundup plus GOAL (1.6E) plus SURFLAN (AS or 75W)	■
■	Roundup plus GOAL (1.6E) plus SIMAZINE (80W, or 4L, or PRINCEP CALIBER 90)	■
■	Roundup plus GOAL (1.6E) plus SURFLAN (AS or 75W) plus SIMAZINE (80W, 4L, or PRINCEP CALIBER 90)	■

Do not apply these tank mixtures in Puerto Rico.

When tank-mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution.

Refer to the individual product labels for specific crops, rates, geographical restrictions and precautionary statements.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the labels of all products.

RECOMMENDED RATES

Annual Weeds - Apply 1 to 5 quarts per acre of this product in these tank mixtures. Use rates at the higher end of the recommended range when weeds are stressed, growing in dense populations or are greater than 12 inches tall.

Perennial Weeds - Apply 1 pint to 5 quarts per acre of this product

in these tank mixtures to control or suppress perennial weeds. Follow the recommendations in the "WEEDS CONTROLLED" section of this label for stage of growth and application rates for specific perennial weeds.

■ **Roundup plus GOAL plus SIMAZINE/SURFLAN** ■

This product plus low rates of Goal in 3-way or 4-way mixtures with simazine and/or Surflan will provide postemergence control of the weeds listed below.

Refer to the individual simazine and Surflan labels for preemergence rates, weeds controlled, precautionary statements and other important information.

Apply these tank mixtures in 3 to 40 gallons of water. Add 0.5 to 1 percent nonionic surfactant by total spray volume to the spray solution.

Apply 1 to 5 quarts per acre of this product plus 4 to 48 fluid ounces per acre of Goal plus labeled rates of simazine and/or Surflan to control the following weeds:

Barley, wild
Hordeum leporinum
Bluegrass, annual
Poa annua
Cheeseweed, common
Malva spp.
Chickweed, common
Stellaria media
Filaree*
Erodium spp.
Fleabane, ~~flaxleaf hairy~~
Conyza bonariensis
Groundsel, common
Senecio vulgaris
Horseweed/Marestail
Conyza canadensis
Nettle, stinging
Urtica dioica
Pineappleweed
Matricaria matricariodes
Rocket, London
Sisymbrium irio
Shepherdspurse
Capsella bursa-pastoris
Sowthistle, annual
Sonchus oleraceus

*Use a minimum of 1.5 quarts of this product in these mixtures.

NOTE: This recommendation does not preclude the use of Goal in these mixtures at higher, labeled rates for preemergence weed control.

■ **PERENNIAL GRASS SUPPRESSION** ■
ORCHARD FLOORS

When applied as directed, this product will suppress vegetative growth as indicated below.

Bahiagrass

This product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with a single application and approximately 120 days with sequential applications. Apply this product 1 to 2 weeks after full green-up or after mowing to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus nonionic surfactant may be made at approximately 45-day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces may be made approximately 45 days after the last application.

Bermudagrass

For burndown, apply 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre. Use 1 quart of this product in 3 to 20 gallons of water per acre east of the Rocky Mountains. Use 1 to 2 quarts of this product in 3 to 10 gallons of water per acre west of the Rocky Mountains. Use this treatment only if reduction of the bermudagrass stand can be tolerated. When burndown is required prior to harvest, allow at least 21 days to ensure sufficient time for burndown to occur.

Suppression only (east of the Rocky Mountains)—Apply 6 to 16 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Rates of 6 to 10 fluid ounces of this product plus nonionic surfactant should be used in shaded conditions or where a lesser degree of suppression is desired. Sequential applications may be made when regrowth occurs and bermudagrass injury and stand reduction can be tolerated.

Suppression only (west of the Rocky Mountains)—Apply 16 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by

recommended stage of growth.

S = Suppression
PC = Partial control

B = Burndown
C = Control

WEED SPECIES	Roundup RATE PER ACRE			
	1 qt	2 qts	3 qts	5 qts
Bermudagrass	B	•	PC	C
Guineagrass				
Texas and Florida Ridge	B	C	C	C
Florida Flatwoods	•	B	C	C
Paragrass	B	C	C	C
Torpedograss	•	•	PC	C

TREE CROPS

Citrus*: calamondin, chironja, citron, grapefruit, kumquat, lemon, lime, mandarin orange, orange, pummelo, tangelo, tangerine, tangors.

Nuts**: almond, beechnut, Brazil nut, butternut, cashew, chestnuts, chinquapin, filbert, hazel nut, hickory nut, macadamia, pecan, pistachio, walnut.

Pome Fruit*: apple, loquat, mayhaw, pear, quince.

Stone Fruit***: apricots, cherries, nectarines, olives, peaches, plums/prunes.

For cherries, any application equipment listed in this section may be used in all states.

For citron and olives, apply as a directed spray only.

Any application equipment listed in this section may be used in apricots, nectarines, peaches and plums/prunes growing in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Texas, Utah and Washington, except for peaches grown in the states specified in the following paragraph. In all other states use wiper equipment only.

For PEACHES grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee only, apply with a shielded boom sprayer or shielded wiper applicator, which prevents any contact of this product with the foliage or bark of trees. Apply no later than 90 days after first bloom. Applications made after this time may result in severe damage. Remove suckers and low-hanging limbs at least 10 days prior to application. Avoid applications near trees with recent pruning wounds or other mechanical injury. Apply only near trees which have been planted in the orchard for 2 or more years. EXTREME CARE MUST

BE TAKEN TO ENSURE NO PART OF THE PEACH TREE IS CONTACTED.

Tropical Fruit: acerola*, atemoya*, avocado*, banana* (plantains)****, breadfruit*, canistel*, carambola*, cherimoya*, cocoa beans*, coffee****, dates*, figs*, genip*, guava****, jaboticaba*, jackfruit*, longan*, lychee*, mango*, mayhaw*, papaya****, passion fruit*, persimmons*, pomegranate*, sapodilla*, sapote*, soursop*, sugar apple*, tamarind*, tea*. In coffee and banana, delay applications 3 months after transplanting to allow the new coffee or banana plant to become established.

NOTE:

- * Allow a minimum of 14 days between last application and harvest.
- ** Allow a minimum of 21 ~~3~~ days between last application and harvest of these crops, ~~except pistachio nuts. For pistachio nuts allow a minimum of 21 days between last application and harvest.~~
- *** Allow a minimum of 17 days between last application and harvest.
- **** Allow a minimum of 28 days between last application and harvest.
- ***** Allow a minimum of 1 day between last application and harvest.

VINE CROPS

Kiwi Fruit

Grapes: Any variety of table, wine or raisin grape may be treated with any equipment listed in this section.

Applications should not be made when green shoots, canes, or foliage are in the spray zone.

Allow a minimum of 14 days between last application and harvest.

In the northeast and Great Lakes regions, applications must be made prior to the end of bloom stage of grapes to avoid injury.

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™Command is a trademark of FMC Corporation.

™DEF is a trademark of Mobay Chemical Company.

This product is protected by

U.S. Patent No. 4,405,531.
Other patents pending.
No license granted under any
non-U.S. patent(s).

EPA Reg. No. 524-445

A-000.01

In case of an emergency involving this product,
Call Collect, day or night, (314) 694-4000.

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MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI, 63167 U.S.A.

SUBMISSION REVIEW RECORD				1. REGISTRATION NUMBER		CYCLE		2. DATE RECEIVED	
				524 -		442		013 10 914	
3. 3015 PUBLICATION NECESSARY <input type="checkbox"/> YES <input type="checkbox"/> NO				4. PETITION NO.				5. RECEIVED PM TEAM MO DAY YR	
6. METHOD OF SUPPORT <input type="checkbox"/> 2A <input type="checkbox"/> 2B <input type="checkbox"/> 2C				7. PRODUCT MANAGER				8. PROJECTED RETURN MO DAY YR	
9. DATE PULLED		10. DATE PUBLISHED		11. ACTION TYPE add extension marker 310				12. OUTGOING DATE MO DAY YR	
11/5/21/91									
REV. SEQ.	REVIEW CODE	REVIEW TYPE	REVIEWER CODE (Initials)	SIGNATURE OF REVIEWER	COM. MENT CODE	DATE REVIEW COMPLETED MO DAY YR			
A		REVIEWABILITY TEAM							
B		PRODUCT MANAGER TEAM EFFICACY REVIEW							
C		PRODUCT MANAGER TEAM HUMAN SAFETY REVIEW							
D		PRODUCT MANAGER TEAM ENVIRONMENTAL SAFETY REVIEW							
E		PRODUCT MANAGER TEAM RESUBMISSION REVIEW							
F		PRODUCT MANAGER		UKW	NA	013	310	914	
G		INTERAGENCY REFERRAL							
H		COST-BENEFIT REVIEW							
I		PUBLIC COMMENTS REVIEW							
J		EEE BRANCH INSECTICIDE EFFICACY							
K		EEE BRANCH HERBICIDE EFFICACY							
L		EEE BRANCH FUNGICIDE EFFICACY							
M		EEE BRANCH RODENTICIDE EFFICACY							
N		EEE BRANCH DISINFECTANT EFFICACY							
O		CHEMISTRY BRANCH RESIDUE CHEMISTRY							
P		EEE BRANCH ENVIRONMENTAL CHEMISTRY							
Q		TOXICOLOGY BRANCH HUMAN SAFETY							
R		EEE BRANCH ENVIRONMENTAL SAFETY							
S									
T									
PRODUCT MANAGER SIGNATURE				TYPE OF RESPONSE				CODE	

APR - 6 1994

Dr. Sheila A. Schuette
Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, DC 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Revise Booklet)
EPA Registration No. 524-445
Your Application Dated March 8, 1994

The amendment referred to above, submitted in connection with registration under Section 3(c)(7)(A) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), is acceptable provided that you:

1. Submit/cite all data required for registration/reregistration of your product under FIFRA Section 3(c)(5) or 4(a) when the Agency requires all registrants of similar products to submit such data.
2. Submit production information (pounds or gallons produced) for this product for the fiscal year in which the use on celeriac is conditionally registered, in accordance with FIFRA section 29. The fiscal year begins October 1 and ends September 30. Production information will be submitted to the Agency no later than November 15, following the end of the preceding fiscal year.

This information should be submitted to:

U.S. Environmental Protection Agency
Office of Pesticide Programs (H7504C)
Document Processing Desk (RSB)
401 M Street SW., CM#2
Washington, DC 20460

3. Submit five (5) copies of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

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-2-

A stamped copy of the label is enclosed for your records.

Sincerely,

Robert J. Taylor *VKW*
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (H7505C)

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(A)	 United States Environmental Protection Agency Office of Pesticide Programs (H7505C) Washington, DC 20460	<input type="checkbox"/>	Registration	OPP Identifier Number <div style="font-size: 24pt; font-weight: bold;">207800</div>
		<input checked="" type="checkbox"/>	Amendment	
		<input type="checkbox"/>	Other	
Application for Pesticide:				

Section I

1. Company/Product Number <div style="text-align: center; font-weight: bold;">524-445</div>	2. EPA Product Manager <div style="text-align: center;">Robert J. Taylor</div>	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) <div style="text-align: center;">Roundup® Herbicide</div>	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, D.C. 20005 <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____

Section II

<input checked="" type="checkbox"/> Amendment - Explain below <input type="checkbox"/> Resubmission in response to Agency letter dated _____ <input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____ <input type="checkbox"/> "Me Too" Application. <input type="checkbox"/> Other - explain below.
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of amended label booklet.

Section III

1. Material This Product Will Be Packaged In:					
Child-Resistant Packaging <input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2. Type of Container <input type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____		
* Certification must be submitted.		If "Yes," Unit Package wgt. No. per container	If "Yes," Package wgt. No. per container		
3. Location of Net Contents Information <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container		4. Size(s) of Retail Container <div style="text-align: center;">various</div>		5. Location of Label Directions <input type="checkbox"/> On Label <input checked="" type="checkbox"/> On Labeling accompanying product	
6. Manner In Which Label Is Affixed To Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input checked="" type="checkbox"/> Other (vinyl glued)			

Section IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name <div style="text-align: center;">Dr. Russell P. Schneider</div>	Title <div style="text-align: center;">Agricultural Regulation Director</div>	Telephone No. (Include Area Code) <div style="text-align: center;">(202) 783-2460</div>

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

2. Signature 	3. Title <div style="text-align: center;">Manager, Regulatory Affairs</div>	6. Date Application Received (Stamped) <div style="font-size: 24pt; font-weight: bold;">300</div>
4. Typed Name <div style="text-align: center;">Sheila A. Schuette, Ph.D.</div>	5. Date <div style="text-align: center;">March 8, 1994</div>	



United States Environmental Protection Agency
Washington, DC 20460

Certification with Respect to Citation of Data

Form Approved
OMB No. 2070-0060
Approval Expires 11-30-93

Applicants Name and Address

Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, DC 20005

EPA File Symbol/Registration Number

524-445

Product Name

Roundup® Herbicide

Date of Application

March 8, 1994

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of approval of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)
2. I certify that, for each study cited in support of this application for registration that is an exclusive use study,
 - ☒ I am the original submitter*; or
 - ☐ I have obtained the written permission of the original data submitter to cite that study*
3. I certify that, for each study cited in support of this application for registration that is not an exclusive use study:
 - a. ☒ I am the original data submitter*; or
 - ☐ I have obtained the written permission of the original data submitter to cite that study*; or
 - b. ☐ I have notified in writing the companies that have submitted data I have cited to support this application and have offered to:
 - (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and
 - (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)
 - ☐ All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)
 - ☐ Those companies that have submitted the studies which I have cited (Selective method*).

* A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the cite-all method.)

Signature

Sheila A. Schuette

Name and Title

Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs

Date

March 8, 1994

General Offer to Pay: I hereby offer and agree to pay compensation to other persons, with regard to the approval of this application, to the extent required.

Signature

Name and Title

Date

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Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

March 8, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Amended Label Booklet

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of an amended label booklet for Roundup herbicide. This label is based on the Roundup herbicide label that was previously approved by the Agency on December 17, 1992; strike-outs indicate text to be deleted in the amended label, while new text to be added is highlighted. In addition to minor wording changes that do not affect product use, the following important changes have been made to the amended label:

- ✓1. We have removed the reference to the one-quart homeowner product in the warranty statement, since it is not applicable to this label booklet, p. 1.
- ✓2. Statements required by the Worker Protection Standard are highlighted on pp. 3-5; this language was previously accepted by the Agency on January 14, 1994.
- ✓3. The common name for *conyza bonariensis* has been corrected to read hairy fleabane; it was erroneously given as flaxleaf fleabane, pp. 25, 88, and 91.

- ✓4. The following perennial weeds have been added to the list of weeds controlled: anise, ice plant, lespedeza, poison hemlock, yellow starthistle, artichoke thistle and velvetgrass, pp. 26-37.
- ✓5. The following woody brush and trees have been added to the list of plants controlled: beech, blackgum, bracken, dogwood, gorse, hickory, Florida holly (Brazilian peppertree), American hornbeam, pine, eastern redbud, white sage, salt cedar and southern waxmyrtle, pp. 38-42.
- ✓6. The maximum annual application rate for non-crop uses has been repeated on page 45 for clarity.
- ✓7. Pipelines, power and telephone rights-of-way have been removed from the list of public areas where this product can be used, p. 45. The use for preparation of forestry sites has also been deleted, pp. 45-46.
- ✓8. On page 48, we have referred the user to the hand-held equipment section for information on rates to use with backpack sprayers and handgun applicators, and deleted the statement that only conventional broadcast equipment can be used for these tank mixtures.
- ✓9. Tree nurseries have been added to the section on ornamentals and Christmas trees, pp. 50-51.
- ✓10. The silvicultural sites and rights-of-way section has been removed from the label, pp. 52-58. We have elected not to print this section in the past since other glyphosate products are formulated specifically for this type of application.
- ✓11. The instructions for making applications to crops not listed on the label have been re-written for clarity, p. 69.
- ✓12. ✓ Celeriac has been added to the crop list under vegetables, p. 71; a tolerance for glyphosate on this crop was established by the Agency on November 24, 1993 at the request of IR-4 (58 FR 62036).
- ✓13. ✓ Shallots have also been added to the vegetable crop list, p. 72. The definition for dry bulb onion was expanded to include shallots on December 8, 1993 (58 FR 64496).
- ✓14. Several changes have been made to the selective equipment section on p. 74. The use of wipers on wheat was approved by the Agency on June 17, 1993. A supplemental label was stamped and we are now including the use in the label booklet. The preharvest interval for tree nuts (except pistachios) has also been reduced from 21 days to 1 day, based on the Agency's approval of a

Roundup[®] Amended Label
March 8, 1994
Page 3

supplemental label on June 17, 1993.

15. ✓ The berries and small fruits sections, pp. 75-76, has been revised to allow wipers to be used in cranberries prior to fruit set. The entire section has also been re-written for clarity.
16. ✓ A section on postharvest control of grain sorghum has been added, p. 80.
17. ✓ The section on sugarcane has been updated to allow applications prior to the emergence of plant cane, p. 81. This use was approved by the Agency on May 26, 1993.
18. ✓ The preharvest applications section, pp. 84-87, has been updated to include wheat; this use was approved by the Agency on June 17, 1993. We have also grouped all of the statements that are relevant to all crops at the beginning of the section, then provided specific instructions for each crop. The timing of application to cotton has been modified to allow earlier applications; a warning about possible reduced yield is included.
19. ✓ The preharvest interval for tree nuts has been also been updated on p. 95.

Monsanto requests that the Agency approve and stamp the enclosed label. The list of data supporting the uses on this amended label can be found in MRID 42155300, which was submitted to the Agency on January 3, 1992. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed. If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,

Sheila A. Schuette

Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider
L.L. Gingerich
D.M. Fee-White

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ADR - F 100A

Dr. Sheila A. Schuette
Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, DC 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Final Printed Label With WPS and Other Changes)
EPA Registration No. 524-445
Your Application Dated December 21, 1993

The labeling referred to above, submitted in connection with the registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. A stamped copy of labeling is enclosed for your records.

Sincerely,

Vkw
Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (B7505C)

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Complete Directions for Use

EPA Reg. No. 524-445

AVOID CONTACT WITH LEAFAGE, GREEN STEMS, EXPOSED OR WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

*Roundup is a registered trademark of Monsanto Company.

1993-2

898.07-000.29/53

Read each of these sections of this label for essential product performance information.

USE THESE CONVENIENT SECTION MARKERS.

TREE AND VINE CROPS	MINIMUM TILLAGE	CROPPING SYSTEMS	NONCROP USES	WEEDS CONTROLLED	MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS	GENERAL INFORMATION
---------------------	-----------------	------------------	--------------	------------------	------------------------------------------------	---------------------

Roundup

Herbicide by Monsanto

Complete Directions for Use

EPA Reg. No. 524-445

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Read the entire label before using this product.

Use only according to label instructions.

Read "LIMIT OF WARRANTY AND LIABILITY" before buying or using. If terms are not acceptable, return at once unopened.

REFORMULATION IS PROHIBITED. SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

LIMIT OF WARRANTY AND LIABILITY

This Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

Buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather

conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

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LIMIT OF WARRANTY AND LIABILITY	2, 3
PRECAUTIONARY STATEMENTS	5, 6
ENVIRONMENTAL HAZARDS	6, 7
INGREDIENTS	7
STORAGE AND DISPOSAL	9
GENERAL INFORMATION	9 through 12
MIXING INSTRUCTIONS	12 through 14
APPLICATION EQUIPMENT	16 through 25
DIRECTIONS FOR USE	8 through 120
WEEDS CONTROLLED	
ANNUAL WEEDS	26 through 36
PERENNIAL WEEDS	37 through 52
WOODY BRUSH AND TREES	52 through 59
NONCROP USES	59 through 83
CROPPING SYSTEMS	83 through 120

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Keep out of reach of children.

WARNING! AVISO!

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY

HARMFUL IF SWALLOWED OR INHALED

Do not get in eyes or on clothing.

Avoid breathing vapor or spray mist.

FIRST AID: IF IN EYES, immediately hold eyelids open and flush with plenty of water for at least 15 minutes. Get medical attention.

IF INHALED, remove individual to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

IF SWALLOWED, this product will cause gastrointestinal tract irritation. Immediately dilute by swallowing water or milk. Get medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

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Personal Protective Equipment

Applicators and other handlers must wear long-sleeved shirt and long pants, shoes plus socks, and protective eyewear. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240 (d) (4-6)), the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations:

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

In case of an emergency involving this product,
Call Collect, day or night, (314) 694-4000.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark.

Do not contaminate water when disposing of equipment washwaters.

Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

ACTIVE INGREDIENT:

*Glyphosate, N-(phosphonomethyl)glycine, in the form of its isopropylamine salt.....41.0%

INERT INGREDIENTS:.....59.0%

100.0%

*Contains 480 grams per litre or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per litre or 3 pounds per U.S. gallon of the acid, glyphosate.

This product is protected by U.S. Patent No. 4,405,531. Other patents pending. No license granted under any non-U.S. patent(s).

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: coveralls, waterproof gloves, shoes plus socks, and protective eyewear.

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Keep people and pets off treated areas until spray solution has dried.

For more product information, call toll-free 1-800-332-3111.

Storage and Disposal

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

See container label for STORAGE AND DISPOSAL instructions.

GENERAL INFORMATION

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT EXCEPT UNDER CONDITIONS AS SPECIFIED WITHIN THIS LABEL.

This product, a water soluble liquid, mixes readily with water to be applied as a foliar spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field-type sprayers after dilution and thorough mixing with water in accordance with label instructions.

This product moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial

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weeds may not occur for 7 days or more. Extremely cool or cloudy weather following treatment may slow activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above-ground growth and deterioration of underground plant parts.

Unless otherwise specified on this label, delay application until vegetation has emerged and reached the stages described for control of such vegetation under the "WEEDS CONTROLLED" section of this label. Unemerged plants arising from unattached underground rhizomes or root stocks of perennials will not be affected by the herbicide and will continue to grow. For this reason, best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per acre within the recommended range when (1) weed growth is heavy or dense, or (2) weeds are growing in an undisturbed (noncultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed, or cut, and have not been allowed to regrow to the recommended stage for treatment.

Rainfall or irrigation occurring within 6 hours after application may reduce effectiveness. Heavy rainfall or irrigation within 2 hours after application may wash the chemical off the foliage and a repeat treatment may be required.

This product does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly recommended in this labeling. Mixing this product with herbicides or other materials not recommended on this label may result in reduced performance.

For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

DOMESTIC ANIMALS: This product is considered to be relatively nontoxic to dogs and other domestic animals; however, ingestion of this product or large amounts of freshly sprayed vegetation may result in temporary gastrointestinal irritation (vomiting, diarrhea, colic, etc.). If such symptoms are observed, provide the animal with plenty of fluids to prevent dehydration. Call a veterinarian if symptoms persist for more than 24 hours.

ATTENTION

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of injury occurring from the use of this product is greatest when winds are gusty or in excess of 5 miles per hour or when other conditions, including lesser wind velocities, will allow spray drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.

NOTE: Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES. DO NOT APPLY WHEN WIND OR OTHER CONDITIONS FAVOR DRIFT. HAND-GUN APPLICATIONS SHOULD BE PROPERLY DIRECTED TO AVOID SPRAYING DESIRABLE PLANTS. NOTE: REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

MIXING

This product mixes readily with water. Mix spray solutions of this product as follows: Fill the mixing or spray tank with the required amount of water. Add the recommended amount of this product (see the "DIRECTIONS FOR USE" and "WEEDS CONTROLLED" sections of this label) near the end of the filling process and mix well. Remove hose from tank immediately after filling to avoid siphoning back into the carrier source. During mixing and application, foaming of the spray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, terminate by-pass and return lines at the bottom of the tank and, if needed, use an approved anti-foam or defoaming agent.

TANK MIXTURES

Always predetermine the compatibility of labeled tank mixtures of this product with water carrier by mixing small proportional quantities in advance.

Mix labeled tank mixtures of this product with water as follows:

1. Place a 20 to 35 mesh screen or wetting basket over filling port.
2. Through the screen, fill the spray tank one-half full with water and start agitation.
3. If a wettable powder is used, make a slurry with the water carrier, and add it SLOWLY through the screen into the tank. Continue agitation.

4. If a flowable formulation is used, premix one part flowable with one part water. Add diluted mixture SLOWLY through the screen into the tank. Continue agitation.
5. If an emulsifiable concentrate formulation is used, premix one part emulsifiable concentrate with two parts water. Add diluted mixture slowly through the screen into the tank. Continue agitation.
6. Continue filling the spray tank with water and add the required amount of this product near the end of the filling process.
7. Where nonionic surfactant is recommended, add this to the spray tank before completing the filling process.
8. Add individual formulations to the spray tank as follows: wettable powder, flowable, emulsifiable concentrate, drift control additive, water soluble liquid followed by surfactant.

Maintain good agitation at all times until the contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed.

Keep by-pass line on or near bottom of tank to minimize foaming. Screen size in nozzle or line strainers should be no finer than 50 mesh. Carefully select proper nozzle to avoid spraying a fine mist. For best results with conventional ground application equipment, use flat fan nozzles.

Clean sprayer and parts immediately after using this product by thoroughly flushing with water.

ADDITIVES

SURFACTANTS

Nonionic surfactants which are labeled for use with herbicides may be used. Do not reduce rates of this product when adding surfactant. When adding additional surfactant, use 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration (4 quarts per 100 gallons of spray solution) for those surfactants containing less than 70 percent active ingredient. Read and carefully observe surfactant cautionary statements and other information appearing on the surfactant label.

AMMONIUM SULFATE

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product, and this product plus 2,4-D, Banvel™ or residual herbicide tank mixtures on annual and perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Low-quality ammonium sulfate may contain material that will not readily dissolve, which could result in nozzle tip plugging. To determine quality, perform a jar test by adding 1/3 cup of ammonium sulfate to 1 gallon of water and agitate for 1 minute. If undissolved sediment is observed, predissolve the ammonium sulfate in water and filter prior to addition to the spray tank. If ammonium sulfate is added directly to the spray tank, add slowly with agitation. Adding too quickly may clog

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outlet line. Ensure that ammonium sulfate is completely dissolved in the spray tank before adding herbicides or surfactant. Thoroughly rinse the spray system with clean water after use to reduce corrosion.

NOTE: The use of ammonium sulfate as an additive does not preclude the need for additional surfactant. Do not use herbicide rates lower than recommended in this label.

COLORANTS OR DYES

Agriculturally-approved colorants or marking dyes may be added to this product. Colorants or dyes used in spray solutions of this product may reduce performance, especially at lower rates or dilutions. Use colorants or dyes according to the manufacturer's recommendations.

APPLICATION EQUIPMENT AND TECHNIQUES

Do not apply this product through any type of irrigation system.

This product may be applied with the following application equipment:

Aerial—Fixed Wing and Helicopter

Broadcast Spray

Controlled Droplet Applicator (CDA)—Hand-held or boom-mounted applicators which produce a spray consisting of a narrow range of droplet sizes.

Hand-Held and High-Volume Spray Equipment—Knapsack and backpack sprayers, pump-up pressure sprayers, hand-

guns, handwands, mistblowers*, lances and other hand-held and motorized spray equipment used to direct the spray onto weed foliage.

*This product is not registered in California or Arizona for use in mistblowers.

Selective equipment—Recirculating sprayers, shielded sprayers and wiper applicators.

See the appropriate part of this section for specific instructions and rates of application.

AERIAL EQUIPMENT

Use the recommended rates of this herbicide in 3 to 15 gallons of water per acre unless otherwise specified on this label. See the "WEEDS CONTROLLED" section of this label for specific rates. Unless otherwise specified, do not exceed 1 quart per acre. Aerial applications of this product may be made in annual cropping conventional tillage systems, fallow and reduced tillage systems, and preharvest. Refer to the individual use area sections of this label for recommended volumes and application rates. **FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.**

Avoid direct application to any body of water.

AVOID DRIFT—DO NOT APPLY DURING INVERSION CONDITIONS, WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITION

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WHICH FAVORS DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Ensure uniform application—To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE. The maintenance of an organic coating (paint), which meets aerospace specification MIL-C-38413, may prevent corrosion.

This product plus Ousi[®], Banvel or 2,4-D tank mixtures may not be applied by air in California.

BROADCAST EQUIPMENT

For control of annual or perennial weeds listed on this label using broadcast equipment—Use the recommended

rates of this product in 3 to 40 gallons of water per acre as a broadcast spray unless otherwise specified on this label. See the "WEEDS CONTROLLED" section of this label for specific rates. As density of weeds increases, spray volume should be increased within the recommended range to ensure complete coverage. Carefully select proper nozzle to avoid spraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

CONTROLLED DROPLET APPLICATION (CDA)

The rate of this product applied per acre by vehicle-mounted CDA equipment must not be less than the amount recommended in this label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 3 to 15 gallons of water per acre.

For the control of labeled annual weeds with hand-held CDA units, apply a 20 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 1.5 MPH (1 quart per acre). For the control of labeled perennial weeds, apply a 20 to 40 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 0.75 MPH (2 to 4 quarts per acre).

Controlled droplet application equipment produces a spray pattern which is not easily visible. Extreme care must be exercised to avoid spray or drift contacting the foliage or any other green tissue of desirable vegetation, as damage or destruction may result.

HAND-HELD and HIGH-VOLUME EQUIPMENT

Use coarse sprays only.

Mix this product in clean water and apply to foliage of vegetation to be controlled. For applications made on a spray-to-wet basis, spray coverage should be uniform and complete. Do not spray to the point of runoff.

For control of annual weeds listed on this label, apply a 0.5 percent solution of this product plus nonionic surfactant to weeds less than 6 inches in height or runner length. Apply prior to seedhead formation in grass or bud formation in broadleaf weeds. Allow three or more days before tillage or mowing.

For annual weeds over 6 inches tall, or when not using additional surfactant, or unless otherwise specified, use a 1 percent solution. For best results, use a 2 percent solution on harder-to-control perennials, such as bermudagrass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

When using application methods which result in less than complete coverage, use a 5 percent solution for annual and perennial weeds and a 5 to 10 percent solution for woody brush and trees.

Prepare the desired volume of spray solution by mixing the amount of this product in water as shown in the following table:

Spray Solution

Desired Volume	Amount of Roundup*					
	1/2%	1%	1 1/2%	2%	5%	10%
1 Gal	3/4 oz	1 1/2 oz	2 oz	2 3/4 oz	6 1/2 oz	13 oz
25 Gal	1 pt	1 qt	1 1/2 qt	2 qt	5 qt	10 qt
100 Gal	2 qt	1 gal	1 1/2 gal	2 gal	5 gal	10 gal

2 tablespoons = 1 fluid ounce

For use in knapsack sprayers, it is suggested that the recommended amount of this product be mixed with water in a larger container. Fill sprayer with the mixed solution.

SELECTIVE EQUIPMENT

This product may be applied through a recirculating spray system, a shielded applicator, or a wiper applicator after dilution and thorough mixing with water to listed weeds growing in any noncrop site specified on this label and only when specifically recommended in cropping systems.

A recirculating spray system directs the spray solution onto weeds growing above desirable vegetation, while spray solution not intercepted by weeds is collected and returned to the spray tank for reuse.

A shielded applicator directs the herbicide solution onto weeds, while shielding desirable vegetation from the herbicide.

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution.

AVOID CONTACT WITH DESIRABLE VEGETATION.

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Contact of the herbicide solution with the desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that the lowest spray stream or wiper contact point is at least 2 inches above the desirable vegetation. Droplets, mist, foam, or splatter of the herbicide solution settling on desirable vegetation may result in discoloration, stunting, or destruction.

Applications made above the crops should be made when the weeds are a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatment may be necessary.

SHIELDED APPLICATORS

When applied as directed under conditions described for shielded applicators, this product will control those weeds listed in the "WEEDS CONTROLLED" section of this label.

Use the following equation to convert from a broadcast rate per acre to a band rate per acre.

Band width in inches	X	Herbicide Broadcast RATE per acre	=	Herbicide Band RATE per acre
Row width in inches				

Band width in inches	X	Broadcast VOLUME of solution per acre	=	Band VOLUME of solution per acre
Row width in inches				

Use nozzles that provide uniform coverage within the treated area. Keep shields on shielded sprayers adjusted to protect desirable vegetation. EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT WITH DESIRABLE VEGETATION.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

WIPER APPLICATORS

Wiper applicators are devices that physically wipe appropriate amounts of this product directly onto the weed.

Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Operate this equipment at ground speeds no greater than 5 mph. Performance may be improved by reducing speed in areas of heavy weed infestations to ensure adequate wiper saturation. Better results may be obtained if 2 applications are made in opposite directions.

Avoid leakage or dripping onto desirable vegetation. Adjust height of applicator to ensure adequate contact with weeds. Keep wiping surfaces clean. Be aware that, on sloping ground, the herbicide solution may migrate, causing dripping on the lower end and drying of the wicks on the upper end of a wiper applicator.

Do not use wiper equipment when weeds are wet.

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Mix only the amount of solution to be used during a 1-day period, as reduced activity may result from use of leftover solutions. Clean wiper parts immediately after using this product by thoroughly flushing with water.

Do not add surfactant to the herbicide solution.

For Rope or Sponge Wick Applicators—Mix 1 gallon of this product in 2 gallons of water to prepare a 33 percent solution. Apply this solution to weeds listed in this "WIPER APPLICATORS" section.

For Porous-Plastic Applicators—Solutions ranging from 33 to 100 percent of this product in water may be used in porous-plastic wiper applicators.

When applied as recommended under the conditions described for "WIPER APPLICATORS", this product **CONTROLS** the following weeds:

ANNUAL GRASSES

Corn	Rye, common
<i>Zea mays</i>	<i>Secale cereale</i>
Panicum, Texas	Shattercane
<i>Panicum texanum</i>	<i>Sorghum bicolor</i>

ANNUAL BROADLEAVES

Sicklepod	Starbur, bristly
<i>Cassia obtusifolia</i>	<i>Acanthospermum hispidum</i>
Spanishneedles	
<i>Sida bipinnata</i>	

When applied as recommended under the conditions described for "WIPER APPLICATORS", this product **SUPPRESSES** the following weeds:

ANNUAL BROADLEAVES

Beggarweed, Florida	Ragweed, giant
<i>Desmodium illinoense</i>	<i>Ambrosia trifida</i>
Dogfennel	Sunflower
<i>Eupatorium capilliflorum</i>	<i>Helianthus annuus</i>
Pigweed, redroot	Thistle, musk
<i>Amaranthus retroflexus</i>	<i>Carduus nutans</i>
Ragweed, common	Velvetleaf
<i>Ambrosia artemisiifolia</i>	<i>Abutilon theophrasti</i>

PERENNIAL GRASSES

Bermudagrass	Smilgrass
<i>Cynodon dactylon</i>	<i>Sporobolus poiretii</i>
Guineagrass	Vaseygrass
<i>Panicum maximum</i>	<i>Paspalum urvillei</i>
Johnsongrass	
<i>Sorghum halepense</i>	

PERENNIAL BROADLEAVES

Dogbane, hemp	Nightshade, silverleaf
<i>Apocynum cannabinum</i>	<i>Solanum elaeagnifolium</i>
Milkweed	Thistle, Canada
<i>Asclepias syriaca</i>	<i>Cirsium arvense</i>

WEEDS CONTROLLED

This herbicide controls many annual and perennial grasses and broadleaf weeds.

ANNUAL WEEDS

- Apply to actively growing grass and broadleaf weeds.
- Allow at least 3 days after treatment before tillage.
- For maximum agronomic benefit, apply when weeds are 6 inches or less in height.
- To prevent seed production, applications should be made prior to seedhead formation.
- This product does not provide residual control; therefore, delay application until maximum weed emergence. Repeat treatments may be necessary to control later germinating weeds.

LOW-VOLUME BROADCAST APPLICATION (LOW-RATE TECHNOLOGY)

When applied as directed under the conditions described, this product will control the weeds listed below when:

1. Water carrier volumes of 3 to 10 gallons per acre for ground applications and 3 to 5 gallons per acre for aerial applications are recommended. (See the "AERIAL APPLICATION" section of this label for approved sites.)
2. A nonionic surfactant is added at 0.5 to 1 percent by total spray volume. Use 0.5 percent surfactant concentration when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration for those surfactants containing less than 70 percent active ingredient.

NOTE

- The addition of 2 percent dry ammonium sulfate by weight or 17 pounds per 100 gallons of water may increase the performance of this product on annual weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.
- Do not tank-mix with soil residual herbicides when using these rates unless otherwise specified.
- For weeds that have been mowed, grazed or cut, allow regrowth to occur prior to treatment.
- Refer to the "TANK MIXTURES" portion of this section for control of additional broadleaf weeds.

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WEED SPECIES	MAXIMUM HEIGHT/ LENGTH	RATE PER ACRE* (Fluid Ounces)
Foxtail <i>Setaria spp.</i>	12"	8 oz.
Barnyardgrass <i>Echinochloa crus-galli</i>	6" (0 to 4" 4 to 6"	12 oz. 16 oz. ¹⁾ 24 oz. ¹⁾
Bluegrass, annual <i>Poa annua</i>		
Brome, downy** <i>Bromus tectorum</i>		
Mustard, blue <i>Chorispora tenella</i>		
Mustard, lanky <i>Descurainia pinnata</i>		
Mustard, tumble <i>Sisymbrium altissimum</i>		
Mustard, wild <i>Sinapis arvensis</i>		
Spurry, umbrella <i>Holosteum umbellatum</i>		

Barley <i>Hordeum vulgare</i>	12"	
Rye <i>Secale cereale</i>		
Sandbur, field <i>Cenchrus spp.</i>		
Shattercane <i>Sorghum bicolor</i>		
Stinkgrass <i>Eragrostis ciliaris</i>		
Wheat <i>Triticum aestivum</i>	18"	
Morningglory <i>Ipomoea spp.</i>	2"	16 oz.
Sicklepod <i>Cassia obtusifolia</i>		
Bluegrass, bulbous <i>Poa bulbosa</i>	6"	
Cheat <i>Bromus secalinus</i>		
Chickweed, common <i>Stellaria media</i>		
Chickweed, mouseear <i>Cerastium vulgatum</i>		

WEED SPECIES	MAXIMUM HEIGHT/ LENGTH	RATE PER ACRE* (Fluid Ounces)
Corn <i>Zea mays</i>	6"	16 oz.
Goatgrass, jointed <i>Aegilops cylindrica</i>		
Groundsel, common <i>Senecio vulgaris</i>		
Henbit <i>Lamium amplexicaule</i>		
Horseweed/Marestail <i>Conyza canadensis</i>		
Lambsquarters, common <i>Chenopodium album</i>		
Pennycress, field Fanweed <i>Thlaspi arvense</i>		
Rocket, London <i>Sisymbrium irio</i>		
Ryegrass, Italian <i>Lolium multiflorum</i>		
Shepherdspurse <i>Capsella bursa-pastoris</i>		

Spurge, annual <i>Euphorbia spp.</i>		
Buttercup <i>Ranunculus spp.</i>	12"	16 oz.
Cocklebur <i>Xanthium strumarium</i>		
Crabgrass <i>Digitaria spp.</i>		
Dwarf dandelion <i>Rigida cespitosa</i>		
Falseflax, smallseed <i>Camelina microcarpa</i>		
Foxtail, Carolina <i>Alopecurus carolinianus</i>		
Johnsongrass, seedling <i>Sorghum halepense</i>		
Oats, wild <i>Avena fatua</i>		
Panicum, fall <i>Panicum dichotomiflorum</i>		
Panicum, Texas <i>Panicum texanum</i>		
Pigweed, redroot <i>Amaranthus retroflexus</i>		
Pigweed, smooth <i>Amaranthus hybridus</i>		

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WEED SPECIES	MAXIMUM HEIGHT/ LENGTH	RATE PER ACRE* (Fluid Ounces)
Witchgrass <i>Panicum capillare</i>	12"	16 oz.
Sicklepod <i>Cassia obtusifolia</i>	3 to 4"	24 oz.
Signalgrass, broadleaf <i>Bracharia platyphylla</i>	4"	
Horseweed/Marestail <i>Conyza canadensis</i>	7 to 12"	
Lambsquarters, common <i>Chenopodium album</i>		
Spurge, annual <i>Euphorbia spp.</i>		
Rice, red <i>Oryza sativa</i>	4"	32 oz.
Teaweed <i>Sida spinosa</i>		
Sprangletop <i>Leptochloa spp.</i>	6"	
Geranium, Carolina <i>Geranium carolinianum</i>	12"	

Goosegrass <i>Eleusine indica</i>	12"	32 oz.
Primrose, cutleaf evening <i>Oenothera laciniate</i>		
Posley, Florida <i>Richardia scabra</i>		
Sicklepod <i>Cassia obtusifolia</i>	5 to 12"	
Spanishneedles <i>Bidens bipinnata</i>		
Filaree <i>Erodium spp.</i>	12"	48 oz.
Sprangletop <i>Leptochloa spp.</i>		

*Use these rates to control barnyardgrass in Alabama, Arkansas, Mississippi, Missouri, Louisiana and Texas for pre-plant treatments.

**For those rates less than 32 fluid ounces per acre, this product at rates up to 32 fluid ounces per acre may be used where heavy weed densities exist.

***For control in no-till systems, use 16 fluid ounces per acre.

TANK MIXTURES

Roundup plus BANVEL
plus NONIONIC SURFACTANT

Roundup plus 2,4-D
plus NONIONIC SURFACTANT

DO NOT APPLY BANVEL OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA.

These tank mixtures are recommended for use in fallow and reduced tillage areas only. Follow use directions as given in the "LOW-VOLUME BROADCAST APPLICATION" section.

This product plus Banvel or 2,4-D will control the annual grasses and broadleaf weeds listed for this product alone at the indicated heights (except 8 fluid ounces per acre applications), plus the following broadleaf weeds. For those weeds previously listed at 8 fluid ounces of this product alone per acre, use 12 fluid ounces in these tank mixtures.

NOTE: Refer to the specific product labels for crop rotation restrictions and cautionary statements of all products used in tank mixtures. Some crop injury may occur if Banvel is applied within 45 days of planting. The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed species.

Apply 12 to 16 fluid ounces of this product plus 0.25 lb. a.i. of Banvel or 0.5 pound a.i. of 2,4-D, plus 0.5 to 1 percent non-ionic surfactant by total spray volume per acre to control

dense populations of the following annual broadleaf weeds when less than the height indicated:

Cocklebur (12") <i>Xanthium strumarium</i>	Morningglory (6") <i>Ipomoea</i> spp.
Kochia* (6") <i>Kochia scoparia</i>	Pigweed, redroot (12") <i>Amaranthus retroflexus</i>
Lambsquarters (12") <i>Chenopodium album</i>	Pigweed, smooth (12") <i>Amaranthus hybridus</i>
Lettuce, prickly (6") <i>Lactuca scariola</i>	Thistle, Russian (12") <i>Salsola kali</i>
Marestail/Horseweed (6") <i>Conyza canadensis</i>	

* Controlled with Banvel tank mixture only.

Apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre to control the following annual broadleaf weeds when less than 6 inches in height.

Ragweed, common <i>Ambrosia artemisiifolia</i>	Smartweed, Pennsylvania <i>Polygonum pennsylvanicum</i>
Ragweed, giant <i>Ambrosia trifida</i>	Velvetleaf <i>Abutilon theophrasti</i>

HIGH-VOLUME BROADCAST APPLICATIONS

When applied as directed under the conditions described, this product will control the weeds listed below when water carrier volumes are 10 to 40 gallons per acre for ground applications.

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Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume. Use 1 quart per acre if weeds are less than 6 inches tall and 1.5 quarts per acre if weeds are over 6 inches tall. If weeds have been mowed, grazed, or cut, allow adequate time for new growth to reach recommended stages prior to treatment. These rates will also provide control of weeds listed in the "LOW-VOLUME BROADCAST APPLICATION" section.

WEED SPECIES

Balsamapple*	Panicum
<i>Momordica charantia</i>	<i>Panicum</i> spp.
Bassia, fivehook	Ragweed, common
<i>Bassia hyssopifolia</i>	<i>Ambrosia artemisiifolia</i>
Brome	Ragweed, giant
<i>Bromus</i> spp.	<i>Ambrosia trifida</i>
Fiddleneck	Smartweed, Pennsylvania
<i>Amsinckia</i> spp.	<i>Polygonum pennsylvanicum</i>
Fleabane, hairy	Sowthistle, annual
<i>Conyza bonariensis</i>	<i>Sonchus oleraceus</i>
Fleabane	Sunflower
<i>Erigeron</i> spp.	<i>Helianthus annuus</i>
Kochia	Thistle, Russian
<i>Kochia scoparia</i>	<i>Setola kali</i>
Lettuce, prickly	Velvetleaf
<i>Lactuca scariola</i>	<i>Abutilon theophrasti</i>

*Apply with hand-held equipment only.

PERENNIAL WEEDS

Apply this product as follows to control or destroy most perennial weeds:

NOTE: If weeds have been mowed or tilled, do not treat until plants have resumed active growth and have reached the recommended stages.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Repeat treatments must be made prior to crop emergence.

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product on perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.

When applied as recommended under the conditions described, this product WILL CONTROL the following PERENNIAL WEEDS:

Alfalfa	Bentgrass
<i>Medicago sativa</i>	<i>Agrostis</i> spp.
Alligatorweed*	Bermudagrass
<i>Alternanthera</i>	<i>Cynodon dactylon</i>
<i>philoxeroides</i>	Bermudagrass, water
Artichoke, Jerusalem	(knotgrass)
<i>Helianthus tuberosus</i>	<i>Paspalum distichum</i>
Bahiagrass	Bindweed, field
<i>Paspalum notatum</i>	<i>Convolvulus arvensis</i>

Bluegrass, Kentucky <i>Poa spp.</i>	Milkweed <i>Asclepias spp.</i>
Blueweed, Texas <i>Helianthus ciliaris</i>	Muhly, wirestem <i>Muhlenbergia frondosa</i>
Brackenfern <i>Pteridium aquilinum</i>	Mullein, common <i>Verbascum thapsus</i>
Bromegrass, smooth <i>Bromus inermis</i>	Napiergrass <i>Pennisetum purpureum</i>
Bursage, woollyleaf <i>Franseria tomentosa</i>	Nightshade, silverleaf <i>Solanum elaeagnifolium</i>
Canarygrass, reed <i>Phalaris arundinacea</i>	Nutsedge, purple, yellow <i>Cyperus rotundus</i> <i>Cyperus esculentus</i>
Cattail <i>Hypha spp.</i>	Orchardgrass <i>Dactylis glomerata</i>
Clover, red <i>Trifolium pratense</i>	Pampasgrass <i>Cortaderia jubata</i>
Clover, white <i>Trifolium repens</i>	Paragrass <i>Bracharia mutica</i>
Cogongrass <i>Imperata cylindrica</i>	Phragmites* <i>Phragmites spp.</i>
Dallisgrass <i>Paspalum dilatatum</i>	Quackgrass <i>Agropyron repens</i>
Dandelion <i>Taraxacum officinale</i>	Redvine* <i>Brunnichia ovata</i>
Dock, curly <i>Rumex crispus</i>	Reed, giant <i>Arundo donax</i>

Dogbane, hemp <i>Apocynum cannabinum</i>	Ryegrass, perennial <i>Lolium perenne</i>
Fescues <i>Festuca spp.</i>	Smartweed, swamp <i>Polygonum coccineum</i>
Fescue, tall <i>Festuca arundinacea</i>	Sporge, leafy* <i>Euphorbia esula</i>
Guineagrass <i>Panicum maximum</i>	Sweet potato, wild* <i>Ipomoea pandurata</i>
Horsenettle <i>Solanum carolinense</i>	Thistle, Canada <i>Cirsium arvense</i>
Hornradish <i>Armoracia rusticana</i>	Timothy <i>Phleum pratense</i>
Johnsongrass <i>Sorghum halepense</i>	Torpedograss* <i>Panicum repens</i>
Kikuyugrass <i>Pennisetum clandestinum</i>	Trumpet creeper* <i>Campsis radicans</i>
Knapweed <i>Centauria repens</i>	Vaseygrass <i>Paspalum urvillei</i>
Lantana <i>Lantana camara</i>	Wheatgrass, western <i>Agropyron smithii</i>

*Partial Control

This product is not registered in California for use on water bermudagrass.

See "DIRECTIONS FOR USE" and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for labeled uses and specific application instructions.

Alfalfa—Apply 1 quart of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make application after the last hay cutting in the fall. Allow alfalfa to regrow to a height of 6 to 8 inches or more prior to treatment. Applications should be followed with deep tillage at least 7 days after treatment, but before soil freeze-up.

Alligatorweed—Apply 4 quarts of this product per acre or apply a 1.5 percent solution with hand-held equipment to provide partial control. Apply when most of the plants are in bloom. Repeat applications will be required to maintain such control.

Bentgrass—For suppression in grass seed production areas. For ground applications only, apply 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure entire crown area has resumed growth prior to a fall application. Bentgrass should be actively growing and have at least 3 inches of growth. Tillage prior to treatment should be avoided. Tillage 7 to 10 days after application is recommended for best results. Failure to use tillage after treatment may result in unacceptable control.

Bermudagrass—For control, apply 5 quarts of this product per acre. For partial control, apply 3 quarts per acre. Treat when bermudagrass is actively growing and seedheads are present. Retreatment may be necessary to maintain control. Allow 7 or more days after application before tillage.

Bermudagrass, water (knotgrass)—Apply 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Apply when

water bermudagrass is actively growing and 12 to 18 inches in length. Allow 7 or more days before tilling, flushing or flooding the field.

Fall applications only—Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Fallow fields should be tilled prior to application. Apply prior to frost on water bermudagrass that is actively growing and 12 to 18 inches in length. Allow 7 or more days before tillage.

Bindweed, field—For control, apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts east of the Mississippi River. Apply when the weeds are actively growing and are at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Also for control, apply 2 quarts of this product plus 0.5 pound a.i. of Banvel in 10 to 20 gallons of water per acre. At these rates, apply using ground application only.

The following tank mixtures with 2,4-D may be applied using aerial application equipment (except in California) in fallow and reduced tillage systems only.

For suppression on irrigated agricultural land, apply 1 to 2 quarts of this product plus 1 pound a.i. of 2,4-D in 10 to 20 gallons of water per acre with ground equipment only. Applications should be made following harvest or in fall fallow

ground when the bindweed is actively growing and the majority of runners are 12 inches or more in length. The use of at least one irrigation will promote active bindweed growth.

For suppression, apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Applications should be delayed until maximum emergence has occurred and when vines are between 6 to 18 inches in length.

In California only, apply 1 to 5 quarts of this product per acre. Actual rate needed for suppression or control will vary within this range depending on local conditions.

For suppression on irrigated land where annual tillage is performed, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing bindweed that has reached a length of 12 inches or greater. Allow maximum weed emergence and runner growth. Do not treat when weeds are under drought stress as good soil moisture is necessary for active growth. Allow 3 or more days after application before tillage.

Bluegrass, Kentucky / Bromegrass, smooth / Orchardgrass—Apply 2 quarts of this product in 10 to 40 gallons of water per acre when the grasses are actively growing and most plants have reached boot-to-early seedhead stage of development. For partial control in pasture or hay crop renovation, apply 1 to 1.5 quarts of this product plus 0.5 to 1 per-

cent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing plants when most have reached 4 to 12 inches in height. Allow 7 or more days after application before tillage.

Orchardgrass (sods going to no-till corn)—Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to orchardgrass that is a minimum of 12 inches tall for spring applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting. A sequential application of atrazine will be necessary for optimum results.

Bluemead, Texas—Apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts per acre east of the Mississippi River. Apply when weed is actively growing and is at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. New leaf development indicates active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Brackenfern—Apply 3 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment. Apply to fully expanded fronds which are at least 18 inches long.

Bursage, woollyleaf—For control, apply 2 quarts of this product plus 1 pint of Banvel per acre. For partial control, apply 1 quart of this product plus 1 pint of Banvel per

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acre. Add 0.5 to 1 percent nonionic surfactant by total spray volume and apply in 3 to 20 gallons of water per acre. Apply when plants are producing new active growth which has been initiated by moisture for at least 2 weeks and when plants are at or beyond flowering.

Canarygrass, reed / Timothy / Wheatgrass, western—Apply 2 to 3 quarts of this product per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth. Allow 7 or more days after application before tillage.

Cogongrass—Apply 3 to 5 quarts of this product plus 0.5 to 1 percent nonionic surfactant in 10 to 40 gallons of water per acre. Apply when Cogongrass is at least 18 inches tall and actively growing in late summer or fall. Allow 7 or more days after application before tillage or mowing. Due to uneven stages of growth and the dense nature of vegetation preventing good spray coverage, repeat treatments may be necessary to maintain control.

Dandelion / Dock, curly—Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fluid ounces of this product plus 0.5 pound a.i. 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre.

Dogbane, hemp—Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage

prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage.

For suppression, apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Delay applications until maximum emergence of dogbane has occurred.

Fescue, tall—Apply 3 quarts of this product in 10 to 40 gallons of water per acre to actively growing plants when most have reached boot-to-early seedhead stage of development.

Fall applications only—Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to fescue in the fall when actively growing and plants have 6 to 12 inches of new growth. Allow 7 or more days after application before tillage. A sequential application of 1 pint per acre of this product plus nonionic surfactant will improve long-term control and control seedlings germinating after fall treatments or the following spring.

Guineagrass—Apply 3 quarts of this product per acre or use a 1 percent solution with hand-held equipment. Apply to actively growing guineagrass when most has reached at least the 7-leaf stage of growth. Ensure thorough coverage when using hand-held equipment. Allow 7 or more days after application before tillage.

Johnsongrass / Ryegrass, perennial—Apply 1 to 3 quarts of this product per acre. In annual cropping systems apply 1 to 2 quarts of this product per acre. Apply 1 quart of this product

plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre. In noncrop, or areas where annual tillage (no-till) is not performed, apply 2 to 3 quarts of this product in 10 to 40 gallons of water per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth or in the fall prior to frost. Allow 7 or more days after application before tillage. Do not tank-mix with residual herbicides when using the 1 quart per acre rate.

For burndown of Johnsongrass, apply 1 pint per acre plus 0.5 to 1 percent nonionic surfactant in 3 to 10 gallons of water per acre before the plants reach a height of 12 inches. For this use, allow at least 3 days after treatment before tillage.

Spot treatment (partial control or suppression)—Apply a 1 percent solution of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume when Johnsongrass is 12 to 18 inches in height. Coverage should be uniform and complete.

Kikuyugrass—Apply 2 to 3 quarts of this product per acre. Spray when most kikuyugrass is at least 8 inches in height (3 or 4-leaf stage of growth) and actively growing. Allow 3 or more days after application before tillage.

Knapweed / Horseradish—Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage.

Lantana—Apply this product as a 1 to 1.25 percent solution using hand-held equipment only. Apply to actively growing lantana at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth. Allow 7 or more days after application before tillage.

Milkweed, common—Apply 3 quarts of this product per acre. Apply when actively growing and most of the milkweed has reached the late bud to flower stage of growth. Following small grain harvest or mowing, allow milkweed to regrow to a mature stage prior to treatment. Allow 7 or more days after application before tillage.

Muhly, wirestem—Apply 1 to 2 quarts of this product per acre. Use 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre or in pasture, sod, or noncrop areas. Spray when the wirestem muhly is 8 inches or more in height and actively growing. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage. This product will not provide residual control of wirestem muhly from seeds which germinate after application of this product. Do not tank mix with residual herbicides when using the 1 quart per acre rate.

Nightshade, silverleaf—For control, apply 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Applications should be made when at least 60 percent of the plants have

berries. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth.

Nutsedge: purple, yellow—Apply 3 quarts of this product per acre as a broadcast spray, or apply a 1 to 2 percent solution from hand-held equipment to control existing nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Repeat treatments will be required for long-term control of ungerminated tubers.

Sequential applications of 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre will provide control. Make applications when a majority of the plants are in the 3 to 5-leaf stage (less than 6 inches tall). Repeat this application, as necessary, when newly emerging plants reach the 3 to 5-leaf stage. Subsequent applications will be necessary for long-term control.

For suppression to partial control of existing plants, apply 1 pint to 2 quarts of this product per acre, plus 0.5 to 1 percent nonionic surfactant in 3 to 40 gallons of water per acre. Treat when plants have 3 to 5 leaves and most are less than 6 inches tall. Repeat treatments will be required to control subsequent emerging plants or regrowth of existing plants. Wait 7 days after treatment before tillage or mowing.

Pampasgrass—Apply this product as a 1.5 to 2 percent solution using hand-held equipment. Apply to plants that are actively growing at or beyond the boot stage of growth. Thorough coverage is necessary for best control.

Phragmites—For partial control of phragmites in Florida and the counties of other states bordering the Gulf of Mexico, apply 5 quarts per acre as a broadcast spray or apply a 2 percent solution from hand-held equipment. In other areas of the U.S., apply 3 quarts per acre as a broadcast spray or apply a 1 percent solution from hand-held equipment for partial control. For best results, treat during late summer or fall months or when plants are actively growing and in full bloom. Treatment before or after this stage may lead to reduced control. Due to the dense nature of the vegetation, which may prevent good spray coverage or uneven stages of growth, repeat treatments may be necessary to maintain control. Visual control symptoms will be slow to develop.

Quackgrass—In Annual Cropping Systems, or in Pastures and Sods Followed by Deep Tillage: Apply 1 to 2 quarts of this product per acre. For the 1 quart rate, apply 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. For the 2 quart rate, apply in 10 to 40 gallons of water per acre. Do not tank mix with residual herbicides when using the 1 quart rate. Spray when quackgrass is 6 to 8 inches in height and actively growing. Do not till between harvest and fall applications or in fall or spring prior to spring application. Allow 3 or more days after application before tillage. In pastures or sods, for best results use a moldboard plow.

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Quackgrass—Pasture or Sod or Other Noncrop Areas Where Deep Tillage is Not Planned Following Application: Apply 2 to 3 quarts in 10 to 40 gallons of water per acre. Spray when the quackgrass is greater than 8 inches tall and actively growing. Do not till between harvest and fall application or in fall or spring prior to spring application. Allow 3 or more days after application before tillage.

Redvine—For suppression, apply 24 fluid ounces of this product per acre at each of two applications 7 to 14 days apart or a single application of 2 quarts per acre. Apply recommended rates in 5 to 10 gallons of water per acre plus 0.5 to 1 percent nonionic surfactant by total volume. Apply to actively growing plants in late September or early October, which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

Reed, giant—For control of giant reed, apply a 2 percent solution of this product when plants are actively growing. Best results are obtained when applications are made in late summer to fall.

Smartweed, swamp—Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fluid ounces of this product plus 0.5 pound active ingredient of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Spurge, leafy—For suppression, apply 16 fluid ounces of this product plus 0.5 pound active ingredient 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing. If mowing has occurred prior to treatment, apply when most of the plants are 12 inches tall. Allow 7 or more days after application before tillage.

Sweet Potato, wild—Apply this product as a 2 percent solution using hand-held equipment. Apply to actively growing weeds that are at or beyond the bloom stage of growth. Repeat applications will be required. Allow the plant to reach the recommended stage of growth before retreatment. Allow 7 or more days before tillage.

Thistle, Canada—Apply 2 to 3 quarts of this product per acre. Apply to actively growing thistles when most are at or beyond the bud stage of growth. After harvest, mowing or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to the application of this product. Fall treatments must be applied before a killing frost. Allow 3 or more days after application before tillage.

For suppression of Canada thistle, apply 1 quart per acre of this product, or 1 pint of this product plus 0.5 pound a.i. 2,4-D per acre, plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall after harvest, mowing or tillage. Allow rosette regrowth to a minimum of 6 inches in diameter before treating. Applications can be made as long as leaves are still

green and plants are actively growing at the time of application. Allow 3 or more days after application before tillage.

Torpedograss—Apply 4 to 5 quarts of this product per acre to provide partial control of torpedograss. Apply to actively growing torpedograss when most plants are at or beyond the seedhead stage of growth. Repeat applications will be required to maintain control. Fall treatments must be applied before frost. Allow 7 or more days after application before tillage.

Trumpet creeper—For control, apply 2 quarts of this product per acre in 5 to 10 gallons of water per acre. Apply to actively growing plants in late September or October, which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

Other perennials listed on this label—Apply 3 to 5 quarts of this product per acre. Apply when actively growing and most have reached early head or early bud stage of growth. Allow 7 or more days after application before tillage.

WOODY BRUSH AND TREES

When applied as recommended under the conditions described, this product CONTROLS or PARTIALLY CONTROLS the following woody brush, plants and trees:

Alder	Cherry:
<i>Alnus</i> spp.	Bitter
	<i>Prunus emarginata</i>
Ash*	Black
<i>Fraxinus</i> spp.	<i>Prunus serotina</i>
Aspen, quaking	Pin
<i>Populus tremuloides</i>	<i>Prunus pensylvanica</i>
Bearmat (Bearclover)	Coyote brush
<i>Chamaebatia foliolosa</i>	<i>Baccharis consanguinea</i>
Birch	Creeper, Virginia*
<i>Betula</i> spp.	<i>Parthenocissus</i>
Blackberry	<i>quinquefolia</i>
<i>Rubus</i> spp.	Dewberry
Broom:	<i>Rubus trivialis</i>
French	Elderberry
<i>Cytisus</i>	<i>Sambucus</i> spp.
<i>monspessulanus</i>	Elm*
Scotch	<i>Ulmus</i> spp.
<i>Cytisus scoparius</i>	Eucalyptus
Buckwheat, California*	<i>Eucalyptus</i> spp.
<i>Eriogonum fasciculatum</i>	Hasardia*
Cascara*	<i>Haplophragma squamosus</i>
<i>Rhamnus purshiana</i>	Hawthorn
Catsclaw*	<i>Crataegus</i> spp.
<i>Acacia greggii</i>	Hazel
Ceanothus*	<i>Corylus</i> spp.
<i>Ceanothus</i> spp.	Honeysuckle
Chamise	<i>Lonicera</i> spp.
<i>Adenostoma fasciculatum</i>	Kudzu
	<i>Pueraria lobata</i>

Locust, black* <i>Robinia pseudoacacia</i>	Russian-olive*** <i>Elaeagnus angustifolia</i>
Madrone <i>Arbutus menziesii</i>	Sage, black <i>Salvia mellifera</i>
Manzanita <i>Arctostaphylos spp.</i>	Sagebrush, California <i>Artemisia californica</i>
Maple: Red** <i>Acer rubrum</i>	Salmonberry <i>Rubus spectabilis</i>
Sugar <i>Acer saccharum</i>	Sassafras <i>Sassafras albidum</i>
Vine* <i>Acer circinnatum</i>	Sourwood <i>Oxydendrum arboreum</i>
Monkey Flower* <i>Mimulus guttatus</i>	Sumac: Poison* <i>Rhus vernix</i>
Oak: Black* <i>Quercus velutina</i>	Smooth* <i>Rhus glabra</i>
Northern Pin <i>Quercus palustris</i>	Winged* <i>Rhus copallina</i>
Post <i>Quercus stellata</i>	Sweetgum <i>Liquidambar styraciflua</i>
Red <i>Quercus rubra</i>	Swordfern* <i>Polystichum munitum</i>
Southern Red <i>Quercus falcata</i>	Tallowtree, Chinese <i>Sapium sebiferum</i>
White* <i>Quercus alba</i>	

Persimmon* <i>Diospyros spp.</i>	Tan Oak <i>Lithocarpus densiflorus</i>
Poison Ivy <i>Rhus radicans</i>	Thimbleberry <i>Rubus parviflorus</i>
Poison Oak <i>Rhus toxicodendron</i>	Tobacco, tree* <i>Nicotiana glauca</i>
Poplar, yellow* <i>Linodendron tulipifera</i>	Trumpet creeper <i>Campsis radicans</i>
Raspberry <i>Rubus spp.</i>	Willow <i>Salix spp.</i>
Rose, multiflora <i>Rosa multiflora</i>	

*Partial control

**See below for control or partial control instructions.

***This product is not registered in California for use on Russian-olive.

NOTE: If brush has been mowed or killed or trees have been cut, do not treat until regrowth has reached the recommended stages of growth.

Apply this product when plants are actively growing and, unless otherwise directed, after full leaf expansion. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in late summer or fall after fruit formation.

In grid areas, best results are obtained when application is made in the spring to early summer when brush species are at high moisture content and are flowering.

Ensure thorough coverage when using hand-held equipment. Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

See "DIRECTIONS FOR USE", and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for labeled uses and specific application instructions.

Apply this product as follows to control or partially control the following woody brush and trees.

Alder / Dewberry / Honeysuckle / Post Oak / Raspberry— For control, apply 3 to 4 quarts per acre of this product as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment.

Aspen, quaking / Cherry: bitter, black, pin / Hawthorn / Oak, southern red / Sweetgum / Trumpetreeper— For control, apply 2 to 3 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment.

Birch / Elderberry / Hazel / Salmonberry / Thimbleberry— For control, apply 2 quarts per acre of this product as a broadcast spray or as a 1 percent solution with hand-held equipment.

Blackberry— For control, apply 3 to 4 quarts per acre of this product as a broadcast spray, or 1 to 1.5 percent solution with hand-held equipment. Make application after plants have reached full leaf maturity. Best results are obtained when applications are made in late summer or fall. After berries have set or dropped in late fall, blackberry can be controlled by applying a 3/4 percent solution of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume with hand-held equipment. For control of blackberries after leaf drop and until killing frost or as long as stems are green, apply 3 to 4 quarts of this product in 10 to 40 gallons of water per acre.

Broom: French, Scotch— For control, apply a 1.5 to 2 percent solution with hand-held equipment.

Buckwheat, California / Hazardia / Monkey Flower / Tobacco, tree— For partial control of these species, apply a 1 to 2 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

Catsclaw— For partial control, apply as a 1 to 1.5 percent solution with hand-held equipment.

Coyote Brush— For control, apply a 1.5 to 2 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.

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Eucalyptus—For control of eucalyptus resprouts, apply a 2 percent solution of this product with hand-held equipment when resprouts are 6 to 12 feet tall. Ensure complete coverage. Apply when plants are growing actively. Avoid application to drought-stressed plants.

Kudzu—For control, apply 4 quarts of this product per acre as a broadcast spray or as a 2 percent solution with hand-held equipment. Repeat applications will be required to maintain control.

Madrone resprouts—For suppression or partial control, apply a 2 percent solution of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with spring/early summer treatments.

Maple, red—For control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed. For partial control, apply 2 to 4 quarts of this product per acre as a broadcast spray.

Maple, sugar / Oak, northern pin / Oak, red—For control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.

Poison Ivy / Poison Oak—For control, apply 4 to 5 quarts of this product per acre as a broadcast spray or as a 2 percent solution with hand-held equipment. Repeat applications may be required to maintain control. Fall treatments must be applied before leaves lose green color.

Rose, multiflora—For control, apply 2 quarts of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment. Treatments should be made prior to leaf deterioration by leaf-feeding insects.

Sage, black / Sagebrush, California / Chamise / Tallow-tree, Chinese—For control of these species, apply a 1 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

Tan oak resprouts—For suppression or partial control, apply a 2 percent solution of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with fall applications.

Willow—For control, apply 3 quarts of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment.

Other Woody Brush and Trees listed on this label—For partial control, apply 2 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 2 percent solution with hand-held equipment.

NONCROP USES

See "GENERAL INFORMATION" and "MOUND, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for essential product performance information and the following "NONCROP" sections for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE TURFGRASSES, TREES, SHRUBS OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seeds.

This product does not provide residual weed control. For subsequent weed control, follow a label-approved herbicide program.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

INDUSTRIAL, RECREATIONAL AND PUBLIC AREAS

When applied as directed for "NONCROP USES", under conditions described, this product controls annual and perennial weeds listed on this label growing in areas such as airports, ditch banks, dry ditches, dry canals, fencerows, golf courses, highways, industrial plant sites, lumber yards, parking areas, parks, petroleum tank farms and pumping installations, railroads, roadsides, schools, storage areas, utility substations, other public areas and similar industrial or noncrop areas.

For specific rates of application and instructions for control of various annual and perennial weeds and woody brush and trees, see the "WEEDS CONTROLLED" section of this label.

This product may be applied with recirculating sprayers, shielded applicators, or wiper applicators in any noncrop site specified on this label. See the Selective Equipment part of "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for information on proper use and calibration of this equipment.

TANK MIXTURES FOR INDUSTRIAL SITES

Roundup plus OUST™

Use on industrial sites including airports, industrial plants, lumberyards, petroleum tank farms, pumping stations, pipelines, railroads, roadsides, storage areas or other similar sites where bare ground is desired.

When applied as directed for "NONCROP USES" under the conditions described, this product plus Oust provides control of annual weeds listed in the "WEEDS CONTROLLED" section of the label for this product and Oust, and control or partial control of the perennial weeds listed below.

Apply 1 to 2 quarts of this product with 2 to 4 ounces of Oust in 10 to 40 gallons of spray solution per acre as a broadcast spray to actively growing weeds.

When applied by air, use the recommended rates in 5 to 15 gallons of spray solution per acre.

This product plus Oust tank mixtures may not be applied by air in California.

For control of annual weeds, use the lower rates of these products.

For control of the listed perennial weeds, use the higher rates of both products. For partial control, use the lower rates.

Bahiagrass <i>Paspalum notatum</i>	Johnsongrass** <i>Sorghum halepense</i>
Bermudagrass* <i>Cynodon dactylon</i>	Poorjoe** <i>Diodia teres</i>
Broomsedge <i>Andropogon virginicus</i>	Quackgrass <i>Agropyron repens</i>
Dock, curly <i>Rumex crispus</i>	Trumpet creeper* <i>Campsis radicans</i>
Dogfennel <i>Eupatorium capillitium</i>	Yaseygrass <i>Paspalum urvillei</i>
Fescue, tall <i>Festuca arundinacea</i>	Vervain, blue <i>Verbena hastata</i>

* Suppression at the higher rates only.

** Control at the lower rates.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

TANK MIXTURES NONCROP SITES

When applied as a tank mixture, this product provides control of the emerged annual weeds and partial control of the emerged perennial weeds listed in this label. When applied as a tank mixture, the following residual herbicides will provide preemergence control of the weeds listed in the individual product labels.

- Roundup plus DIURON ■
- Roundup plus KROVAR™ I ■
- Roundup plus KROVAR II ■
- Roundup plus RONSTAR™ 50WP ■
- Roundup plus SIMAZINE,
PRINCEP™ CALIBER™ 90 ■
- Roundup plus SIMAZINE 4L ■
- Roundup plus SIMAZINE 80W ■
- Roundup plus SURFLAN™ 75W ■
- Roundup plus SURFLAN AS ■

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution. See the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label before preparing these tank mixtures.

Read and carefully observe the label claims, cautionary statements, recommended use rates and all other information on the labels of all products used in these tank mixtures. Use according to the most restrictive label directions for each product in the mixture.

CONTROL OF EMERGED WEEDS

Annual Weeds—Apply 1 quart per acre of this product in these tank mixtures when weeds are less than 6 inches tall and 1.5 quarts per acre when weeds are more than 6 inches tall.

Perennial Weeds—For partial control of perennial weeds using these tank mixtures, apply 2 to 5 quarts per acre of this product. Follow the recommendations in the "WEEDS CONTROLLED" section of this label for stage of growth and rate of application for specific perennial weeds.

PREEMERGENCE WEED CONTROL

For preemergence weed control, refer to the individual product labels for specific noncrop sites, rates, carrier volumes and precautionary statements.

Mix only the quantity of spray solution which can be used during the same day. Do not allow these tank mixtures to stand overnight as this may result in reduced weed control.

APPLY THESE TANK MIXTURES THROUGH CONVENTIONAL BROADCAST EQUIPMENT ONLY.

FARMSTEAD WEED CONTROL

When applied as directed for "NONCROP USES", under conditions described, this product controls undesirable vegetation listed on this label around farmstead building foundations, along and in fences, shelterbelts and for general nonselective farmstead weed control.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

FARM DITCHES

This product will suppress perennial grasses along farm ditches. Apply this product at a rate of 6 to 8 fluid ounces per acre. Use 8 fluid ounces per acre when treating tall (coarse) fescue, fine fescue, orchardgrass or quackgrass covers. For best suppression of these species, add ammonium sulfate at a rate of 1.7 pounds per 10 gallons of spray solution. Use 6 fluid ounces per acre without ammonium sulfate when treating Kentucky bluegrass.

Apply treatments in 10 to 20 gallons of spray solution per acre to actively growing perennial grass covers. For best spray distribution and coverage, use flat fan nozzles.

Add a nonionic surfactant at a rate of 0.5 percent of the spray solution.

Where broadleaf weed control or suppression is desired, tank mix this product with an appropriate, labeled broadleaf weed herbicide.

CONSERVATION RESERVE PROGRAM (CRP ACRES)

This product can be used to control undesirable vegetation when rotating out of CRP acres or to suppress competitive growth and seed production of undesirable vegetation in CRP acres.

For specific rates of application for various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

CRP applications may be made with wiper applicators or conventional spray equipment.

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For selective applications with broadcast spray equipment, apply 1.2 to 1.6 ounces per acre of this product in early spring before desirable CRP grasses, such as crested and tall wheatgrass, break dormancy and initiate green growth. Late fall applications can be made after desirable perennial grasses have reached dormancy. Some stunting of CRP perennial grasses will occur if applications are made when plants are not dormant.

HABITAT MANAGEMENT

This product is recommended for the restoration and/or maintenance of native habitats and in wildlife management areas. Apply as recommended in the "NONCROP USES" section of this label.

Habitat Restoration and Maintenance—When applied as directed, exotic and other undesirable vegetation may be controlled in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broadspectrum vegetation control requirements in habitat management areas. Spot treatments can be made to selectively remove unwanted plants for habitat maintenance and enhancement. For spot treatments, care should be exercised to keep spray off of desirable plants.

Wildlife Food Plots—This product may be used as a site preparation treatment prior to planting wildlife food plots. Any wildlife food species may be planted after applying this prod-

uct, or native species may be allowed to recolonize the area. If tillage is needed to prepare a seedbed, wait 7 days after applying this product before tilling.

ORNAMENTALS AND CHRISTMAS TREES

THIS PRODUCT IS NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN ORNAMENTALS AND CHRISTMAS TREES.

NOTE: Desirable plants may be protected from the spray solution by using shields or coverings made of cardboard or other impermeable material.

When applied as instructed for the conditions described for "NONCROP USES", this product controls undesirable vegetation listed on this label prior to planting, within and around greenhouses and shadehouses, and as a post-directed spray around established ornamentals and Christmas trees.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "Weeds Controlled" section of this label.

Where repeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year.

Site Preparation—Following preplant applications of this product, any ornamental or Christmas tree species may be planted. Precautions should be taken to protect nontarget plants during site preparation applications.

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Greenhouse/Shadehouse Use—This product may be used to control weeds listed on this label which are growing in greenhouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

Postdirected Spray—Use as a postdirected spray around established woody ornamental species or Christmas trees such as those listed below. Care must be exercised to avoid contact of spray, drift or mist with foliage or green bark of established ornamental species.

Arborvitae	Lilac
<i>Thuja</i> spp.	<i>Syringa</i> spp.
Azalea	Magnolia
<i>Rhododendron</i> spp.	<i>Magnolia</i> spp.
Borwood	Maple
<i>Bursera</i> spp.	<i>Acer</i> spp.
Crabapple	Oak
<i>Malus</i> spp.	<i>Quercus</i> spp.
Euonymus	Privet
<i>Euonymus</i> spp.	<i>Ligustrum</i> spp.
Fir	Pine
<i>Abies</i> spp.	<i>Pinus</i> spp.
<i>Pseudotsuga</i> spp.	Spruce
Jojoba	<i>Picea</i> spp.
<i>Simmondsia chinensis</i>	Yew
Hollies	<i>Taxus</i> spp.
<i>Ilex</i> spp.	

CUT STUMP TREATMENTS

Woody vegetation may be controlled by treating freshly cut stumps of trees and resprouts with this product. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut vegetation close to the soil surface. Apply a 50 to 100 percent solution of this product to the freshly cut surface immediately after cutting. Delays in application may result in reduced performance. For best results, applications should be made during periods of active growth and full leaf expansion.

When used according to directions for cut stump application, this product will CONTROL, PARTIALLY CONTROL or SUPPRESS many types of woody brush and tree species, some of which are listed below:

Alder	Saltcedar
<i>Alnus</i> spp.	<i>Tamarix</i> spp.
Eucalyptus	Sweetgum
<i>Eucalyptus</i> spp.	<i>Liquidambar styraciflua</i>
Madrone	Iron Oak
<i>Arbutus menziesii</i>	<i>Lithocarpus densiflorus</i>
Oak	Willow
<i>Quercus</i> spp.	<i>Salix</i> spp.
Reed, giant	
<i>Arundo donax</i>	

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INJECTION AND FRILL APPLICATIONS

Woody vegetation may be controlled by injection or frill application of this product. Apply this product using suitable equipment which must penetrate into the living tissue. Apply the equivalent of 1 ml of this product per each 2 to 3 inches of trunk diameter (DBH). This is best achieved by applying a 50 to 100 percent concentration of this material either to a continuous frill around the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying diluted material to a continuous frill or more closely spaced cuttings. Avoid application techniques that allow runoff to occur from frill or cut areas in species that exude sap freely after frills or cutting. In species such as this, make frill or cut at an oblique angle so as to produce a cupping effect and use undiluted material. For best results, application should be made during periods of active growth and after full leaf expansion.

This treatment WILL CONTROL the following woody species:

Oak	Sweetgum
<i>Quercus</i> spp.	<i>Liquidambar styraciflua</i>
Poplar	Sycamore
<i>Populus</i> spp.	<i>Platanus occidentalis</i>

This treatment WILL SUPPRESS the following woody species:

Black gum	Hickory
<i>Nyssa sylvatica</i>	<i>Carya</i> spp.
Dogwood	Maple, red
<i>Cornus</i> spp.	<i>Acer rubrum</i>

TURFGRASSES AND GRASSES FOR SEED PRODUCTION

PREPLANT AND RENOVATION

When applied as directed for "NONCROP USES", under conditions described, this product controls most existing vegetation prior to the planting or renovation of either turfgrasses or grass seed production areas.

For specific rates of application and instructions for control of various annual and perennial weeds, and woody brush and trees, see the "WEEDS CONTROLLED" section of this label.

For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses, such as bermudagrass, summer or fall applications provide best control.

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

TURFGRASSES

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth listed in the "WEEDS CONTROLLED" section of this label.

Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray.

Desirable turfgrasses may be planted following the above procedures.

GRASSES FOR SEED PRODUCTION

Apply this product to actively growing weeds at the stages of growth recommended in the "WEEDS CONTROLLED" section of this label prior to planting or renovation of turf or forage grass areas grown for seed production.

DO NOT feed or graze treated areas within 8 weeks after application.

ANNUAL WEED CONTROL IN DORMANT BERMUDAGRASS AND BAHIAGRASS TURF

When applied as directed for "NONCROP USES" under the conditions described, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant bermudagrass and bahiagrass turf. Refer to the rate table for Roundup alone under the "RELEASE OF BERMUDAGRASS and BAHIAGRASS" section of this label for recommended rates and volumes on the species to be suppressed or controlled. Treat only when turf is dormant and prior to spring greenup. Spot treatments or broadcast applications of this product in excess of 15 fluid ounces per acre may result in injury or delayed greenup in highly main-

tained turfgrass areas; i.e., golf courses, lawns, etc. DO NOT APPLY TANK MIXTURES of this product plus Oust in highly maintained turfgrass areas.

RELEASE OF BERMUDAGRASS OR BAHIAGRASS

NOTE: Use only in areas where bermudagrass or bahiagrass are desirable ground covers and where some temporary injury or discoloration can be tolerated. Use tank mixtures of this product plus Oust only on railroads, highways, utility plant sites, or other right-of-way areas.

When applied as directed for "NONCROP USES" under the conditions described, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant bermudagrass or bahiagrass. This product may be tank-mixed with Oust as recommended for residual control. Make applications to dormant bermudagrass or bahiagrass. Tank mixtures of this product plus Oust may delay greenup. To avoid delays in greenup and minimize injury, do not add more than 1 ounce per acre of Oust on bermudagrass or more than 0.5 ounce per acre on bahiagrass, or treat when these grasses are in a semi-dormant condition.

For best results on winter annuals, treat when plants are in an early growth stage (below 6 inches in height) after most have germinated. For best results on tall fescue, treat when fescue is in or beyond the 4 to 6-leaf stage.

WEEDS CONTROLLED

Rate recommendations for control or suppression of winter annuals and fall fescue are listed below.

Apply the recommended rates of this product alone or as a tank mixture in 10 to 25 gallons of water, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre.

For the best recommendation for the mixture of weeds within your geographic area, contact your Monsanto sales representative.

WEEDS CONTROLLED OR SUPPRESSED
WITH Roundup ALONE*

NOTE: C = Control
S = Suppression

WEED SPECIES	Roundup* FLUID OZ/ACRE					
	8	12	16	24	32	64
Barley, little <i>Hordeum pusillum</i>	S	C	C	C	C	C
Bedstraw, catchweed <i>Galium aparine</i>	S	C	C	C	C	C
Bluegrass, annual <i>Poa annua</i>	S	C	C	C	C	C
Chervil <i>Chaerophyllum tainturieri</i>	S	C	C	C	C	C
Chickweed, common <i>Stellaria media</i>	S	C	C	C	C	C
Clover, crimson <i>Trifolium incarnatum</i>	•	S	S	C	C	C
Clover, large hop <i>Trifolium campestre</i>	•	S	S	C	C	C
Fescue, tall <i>Festuca arundinaceae</i>	•	•	•	•	S	S
Geranium, Carolina <i>Geranium carolinianum</i>	•	•	S	S	C	C
Henbit <i>Lamium amplexicaule</i>	•	S	C	C	C	C
Ryegrass, Italian <i>Lolium multiflorum</i>	•	•	S	C	C	C
Speedwell, corn <i>Veronica arvensis</i>	S	C	C	C	C	C
Velch, common <i>Vicia sativa</i>	•	•	S	C	C	C

* These rates apply only to sites where an established competitive turf is present.

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WEEDS CONTROLLED OR SUPPRESSED WITH Roundup PLUS OUST*

NOTE: C = Control

S = Suppression

WEED SPECIES	Roundup* + OUST							
	Roundup* (FL OZ/A)	8	12	12	16	16	12	16
	OUST (OZ/A)	1/4	1/4	1/2	1/4	1/2	1	1
Barley, little <i>Hordeum pusillum</i>		C	C	C	C	C	C	C
Bedstraw, catchweed <i>Galium aparine</i>		C	C	C	C	C	C	C
Bluegrass, annual <i>Poa annua</i>		S	C	C	C	C	C	C
Chervil <i>Chaerophyllum tainturieri</i>		C	C	C	C	C	C	C
Chickweed, common <i>Stellaria media</i>		S	C	C	C	C	C	C
Clover, crimson <i>Trifolium incarnatum</i>		S	S	S	S	C	C	C
Clover, large hop <i>Trifolium campestre</i>		•	•	S	S	S	C	C
Fescue, tall <i>Festuca arundinaceae</i>		•	•	•	•	•	S	S
Geranium, Carolina <i>Geranium carolinianum</i>		•	S	S	C	C	C	C
Henbit <i>Lamium amplexicaule</i>		•	S	C	C	C	C	C
Ryegrass, Italian <i>Lolium multiflorum</i>		•	S	S	C	C	C	C
Speedwell, corn <i>Veronica arvensis</i>		S	C	C	C	C	C	C
Vetch, common <i>Vicia sativa</i>		C	C	C	C	C	C	C

* These rates or mixtures of rates apply only to sites where an established competitive turf is present.

RELEASE OF ACTIVELY GROWING BERMUDAGRASS

When applied as directed, this product will aid in the release of bermudagrass by providing control of annual species listed in the "WEEDS CONTROLLED" section of this and the Oust label, and suppression or partial control of certain perennial weeds.

For control or suppression of those annual species listed on this label, use 1 to 3 pints of this product as a broadcast spray in 10 to 25 gallons of spray solution per acre. Use the lower rate when treating annual weeds below 6 inches in height (or length of runner in annual vines). Use the higher rate as weeds increase in size or as they approach flower or seedhead formation.

Use the higher rate of this product for partial control of the following perennial species. Use the lower rates for suppression of growth. For best results, see the "Weeds Controlled" section of this label for proper stage of growth.

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Bahiagrass <i>Paspalum notatum</i>	Johnsongrass* <i>Sorghum halepense</i>
Bluestem, silver <i>Andropogon saccharoides</i>	Trumpet creeper** <i>Campsis radicans</i>
Fescue, tall <i>Festuca arundinacea</i>	Vaseygrass <i>Paspalum urvillei</i>

* Control at the higher rates.

** Suppression at higher rates only.

This product may be tank-mixed with Oust. If tank-mixed, use no more than 1 to 2 pints per acre of this product with 1 to 2 ounces of Oust per acre.

Use the lower rates of both mixtures to control annual weeds below 6 inches in height (or runner length in annual vines) that are listed in the "WEEDS CONTROLLED" section of this booklet and the Oust label. Use the higher rates as annual weeds increase in size and approach the flower or seedhead stages.

Use the higher rates of this product to provide partial control of the following perennial weeds. Use the lower rates for suppression of growth.

Bahiagrass <i>Paspalum notatum</i>	Johnsongrass* <i>Sorghum halepense</i>
Bluestem, silver <i>Andropogon saccharoides</i>	Poor Joe** <i>Diodia teres</i>
Broomsedge <i>Andropogon virginicus</i>	Trumpet creeper* <i>Campsis radicans</i>

Dock, curly <i>Rumex crispus</i>	Vaseygrass <i>Paspalum urvillei</i>
Dogfennel <i>Eupatorium capilliflorum</i>	Vervain, blue <i>Verbena hastata</i>
Fescue, tall <i>Festuca arundinacea</i>	

* Suppression at higher rates only.

** Control at the higher rates.

Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment but regrowth will occur under moist conditions. Repeat applications in the same season are not recommended, since severe injury may result.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

COOL SEASON TURF GROWTH REGULATION

When applied as directed, this product will suppress growth and seedhead development of listed turf species in industrial sites.

This product is recommended for management of coarse turf on roadside rights-of-way or other industrial areas. Do not use on high-quality turf or other areas where some turf color changes cannot be tolerated. Slight turf discoloration may occur but turf will regreen and regrow under moist conditions as effects of this product wear off.

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Apply 4 to 6 fluid ounces of this product per acre alone or in a recommended tank mixture. Spray volumes of 10 to 40 gallons per acre are recommended.

When using this product, mix 2 quarts of a nonionic surfactant per 100 gallons of spray solution.

This product can be used for growth and seedhead suppression of:

**Tall Fescue
Smooth Brome**

For best results, apply this product in a recommended tank mixture to actively growing turfgrasses after greenup in the spring of the year. For suppression of seedheads, applications must be made before boot-to-seedhead stage of development. Applications made from seedhead emergence until maturity may result in turf discoloration or injury.

After mowing or removal of seedheads, this product in a recommended tank mixture may also be used to suppress the growth of certain turfgrasses. Allow turf to recover from stress caused by heat, drought, or mowing before making applications. Applications made to turf under stress may increase the potential for discoloration or injury.

ANNUAL GRASSES

For growth suppression of some annual grasses such as annual ryegrass, wild barley and wild oats, apply 3 to 4 fluid ounces of this product in 10 to 40 gallons of spray solution per acre. Applications should be made when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments made after seedhead emergence may cause injury to the desired grasses.

TANK MIXTURES

For the following tank mixtures, consult each product label for weeds controlled and the correct stage of application. Do not treat turf under stress.

Tank mixtures plus 2,4-D Amine

For additional weed control benefits, up to 1 pound a.i. per acre of 2,4-D amine may be added to the following tank mixtures. Consult the label for 2,4-D amine for weeds controlled.

TALL FESCUE

Roundup plus Telar™

For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.5 ounce of Telar per acre.

This tank mixture can also be applied after mowing or removal of tall fescue seedheads for turf growth suppression. Make only one of the above applications per growing season.

Roundup plus Oust

For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

Roundup plus Escort[®]

This tank mixture can be applied after mowing or removal of tall fescue seedheads for turf growth suppression and control or partial control of some annual weeds. Use up to 1/3 ounce of Escort per acre.

NOTE: This product is not registered for use with Escort in California.

SMOOTH BROME**Roundup plus Oust**

For suppression of smooth brome growth and seedheads and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

BAHIAGRASS SEEDHEAD AND VEGETATIVE SUPPRESSION

When applied as directed in the indicated noncrop areas (roadsides, airports, golf course roughs, and plant sites), this product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with single applications and approximately 120 days with sequential applications.

Apply this product 1 to 2 weeks after full greenup of bahiagrass or after the bahiagrass has been mowed to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 fluid ounces per acre of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume may be made at approximately 45 day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product per acre plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces per acre plus nonionic surfactant may be made approximately 45 days after the last application.

A tank mixture of this product plus Oust may be applied only on roadsides for seedhead inhibition and vegetative suppression. Apply 6 fluid ounces per acre of this product plus 0.25 ounce per acre of Oust, plus 0.5 to 1 percent nonionic surfactant by total spray volume 1 to 2 weeks following an initial spring mowing. When using this product plus Oust for suppression of bahiagrass, make only 1 application per year.

CROPPING SYSTEMS

When applied as directed for "CROPPING SYSTEMS", under the conditions described, this product controls annual and

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perennial weeds listed on this label, prior to the emergence of direct seeded crops or prior to transplanting of crops listed on this label.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for essential product performance information.

See the following "CROPPING SYSTEMS" sections for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS OR FRUIT OF DESIRABLE CROPS, PLANTS, TREES OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Except as otherwise specified on this label, repeat treatments must be made before the crop emerges in accordance with the instructions of this label.

Except as otherwise specified in a crop section of this label, the combined total of all treatments must not exceed 8 quarts per acre of this product per year.

Do not plant subsequent crops other than those on the label for 30 days following application.

Do not harvest or feed treated vegetation for 8 weeks following application. Following spot treatment or selective equipment use, allow 14 days before grazing domestic livestock or harvesting forage grasses and legumes.

ROW CROPS

CORN (ALL)*

COTTON*

PEANUTS

SORGHUM (MILO)*

SOTBEANS*

SUGAR CANE*

CEREAL GRAINS

BARLEY*

BUCKWHEAT*

MILLET (PEARL

PROSO)*

OATS*

RICE**

RYE*

TRITICALE*

WHEAT (ALL)*

WILD RICE*

CITRUS

CALAMONDIN

CHIRONJA

CITRON

GRAPEFRUIT

KUMQUAT

LEMON

LIME

MANDARIN ORANGE

ORANGE (ALL)

PUMMELO

TANGELO

TANGERINE

TANGORS

TREE NUTS

ALMOND

BEECHNUT

BRAZIL NUT

BUTTERNUT

CASHEW

CHESTNUT

CHINQUAPIN

FILBERT (HAZELNUT)

HICKORY NUT

MACADAMIA

PECAN

PISTACHIO

WALNUT (BLACK,

ENGLISH)

VINE CROPS

GRAPES

KIWI FRUIT

TREE FRUITS

APPLE

APRICOTS

CHERRY (SWEET, SOUR)

LOQUAT

MAYHAW

NECTARINE

OLIVE

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PEACH	TOMATILLO***
PEAR	TOMATO***†
PLUM/PRUNE (ALL)	TURNIP
QUINCE	WATERCRESS***
<u>VEGETABLES</u>	WATERMELON***
ARTICHOKE	YAMS
JERUSALEM	<u>SMALL FRUITS AND</u>
ASPARAGUS*	<u>BERRIES</u>
BEANS (ALL)	BLACKBERRY
BEE GREENS	BLUEBERRY
BEETS (RED,SUGAR)	BOYSENBERRY
BROCCOLI (ALL)	CRANBERRY
BRUSSELS SPROUTS	CURRANT
CABBAGE (ALL)	DEWBERRY
CABBAGE, CHINESE	ELDERBERRY
CANTALOUPE***	GOOSEBERRY
CARROT	HUCKLEBERRY
CAULIFLOWER	LOGANBERRY
CASABA MELON***	OLALLIEBERRY
CELERY	RASPBERRY
CHARD, SWISS	(BLACK,RED)
CHICORY	<u>FORAGE CROPS AND</u>
COLLARDS	<u>LEGUMES</u>
CRENSHAW MELON***	ALFALFA*
CUCUMBER***	FORAGE GRASSES*
EGGPLANT***	FORAGE LEGUMES*
ENDIVE	<u>TROPICAL CROPS</u>
GARLIC***	ACEROLA
GOURDS***	ATEMOYA

GROUND CHERRY***	AVOCADO
HONEYDEW MELON***	BANANA (PLANTAINS)
HONEY BALL MELON***	BREADFRUIT
HORSEBADISH	CANISTEL
KALE	CARAMBOLA
KOHLRABI	CHERIMOYA
LEEK	COCOA BEANS
LENTILS	COFFEE
LETTUCE	DATES
MANGO MELON***	FIGS
MELONS (ALL)***	GENIP
MUSKMELON***	GUAVA
MUSTARD GREENS	JABOTICABA
OKRA	JACKFRUIT
ONION	LONGAN
RAPE GREENS	LYCHEE
PARSLEY	MANGO
PARSNIPS	PAPAYA
PEAS (ALL)	PASSION FRUIT
PEPPER (ALL)***	PERSIMMONS
PERSIAN MELON***	PINEAPPLE****
POTATO (IRISH,SWLET)	POMEGRANATE
PUMPKIN***	SAPODILLA
RADISH	SAPOTE (BLACK, MAMEY
RHUBARB	WHITE)
RUTABAGA	SOURSOP
SPINACH (ALL)	SUGAR APPLE
SQUASH	TAMARINDO
(SUMMER,WINTER)***	TEA

* Spot treatments may be applied in these crops.

** Do not treat rice fields or levees when the fields contain flood water.

*** Apply only prior to planting. Allow at least 3 days between application and planting.

**** Do not feed or graze treated pineapple forage following application.

† Use is restricted to direct seeded crops only.

When applying this product prior to transplanting crops into plastic mulch, care must be taken to remove residues of this product from the plastic prior to transplanting. Residues can be removed by 0.5 inch natural rainfall or by applying water via a sprinkler irrigation system.

Spot Treatment (Only those crops with *** can be spot treated.)—Applications in growing crops must be made prior to heading of small grains and milo, initial pod set in soybeans, silking of corn, or boll opening on cotton.

For forage grasses and forage legumes see "SPOT TREATMENT" in the "PASTURES" section of "CROPPING SYSTEMS" in this label.

For dilution and rates of application using boom or hand-held equipment, see "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" and "WEEDS CONTROLLED" sections of this label.

NOTE: FOR FORAGE GRASSES AND FORAGE LEGUMES, NO MORE THAN ONE-TENTH OF ANY ACRE SHOULD BE TREATED AT ONE TIME, FOR ALL OTHER CROPS, DO NOT TREAT MORE

THAN 10 PERCENT OF THE TOTAL FIELD AREA TO BE HARVESTED.

THE CROP RECEIVING SPRAY IN TREATED AREA WILL BE KILLED. TAKE CARE TO AVOID DRIFT OR SPRAY OUTSIDE TARGET AREA FOR THE SAME REASON.

Selective Equipment—This product may be applied through recirculating sprayers, shielded applicators or wiper applicators in cotton and soybeans. Shielded and wiper applicators may also be used in tree crops and grapes. Wiper applicators may be used in rutabagas, forage grasses and forage legumes, including pasture sites and grain sorghum (milo).

See the "SELECTIVE EQUIPMENT" part of the "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for information on proper use and calibration of this equipment.

Allow at least the following time intervals between application and harvest:

Cotton, Soybeans	7 days
Apples, Atemoya, Avocado, Breadfruit, Canistel, Carambola, Cherry, Citrus, Grapes, Dates, Jaboticaba, Jackfruit, Longan, Lychee, Passion Fruit, Pear, Persimmons, Rutabagas, Sapodilla, Sapote, Sourpaw, Sugar Apple, Tamarind	14 days
Stone Fruit	17 days
Nut Crops (except Pistachio)	3 days
Pistachio Nuts	21 days
Sorghum (milo)*	40 days

* Do not use roller applicators. Do not feed or graze treated milo fodder. Do not ensile treated vegetation.

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ASPARAGUS

When applied as directed for "CROPPING SYSTEMS" under the conditions described, this product controls weeds listed on this label in asparagus.

For specific rates of applications and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

Prior to Crop Emergence—Apply this product prior to crop emergence for the control of emerged labeled annual and perennial weeds. **DO NOT APPLY WITHIN A WEEK BEFORE THE FIRST SPEARS EMERGE.**

Spot Treatment—Apply this product immediately after cutting, but prior to the emergence of new spears. Do not treat more than 10 percent of the total field area to be harvested. Do not harvest within 5 days of treatment.

Postharvest—Apply this product after the last harvest and all spears have been removed. If spears are allowed to regrow, delay application until ferns have developed. Delayed treatments should be applied as directed or shielded spray in order to avoid contact of the spray with ferns, stems or spears. Direct contact of the spray with the asparagus may result in serious crop injury.

NOTE: Select and use recommended types of spray equipment for postemergence postharvest applications. A directed spray is any application where the spray pattern is aligned in such a way as to avoid direct contact of the spray with the crop. A shielded spray is any application where a physical barrier is positioned and maintained between the spray and the crop to prevent contact of spray with the crop.

BERRIES AND SMALL FRUITS

For cranberries, apply after fruit set and no later than 30 days before harvest.

For other berries, apply as a preplant broadcast application, or as a directed spray or wiper application post-planting.

Wiper applicators may be used in cranberries in accordance with instructions in this section.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for essential product performance information.

See the "SELECTIVE EQUIPMENT" part of the "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for information on recommended use and calibration of this equipment.

Allow a minimum of 14 days between last application and harvest of small fruits and berries.

For Wick or other Wiper Applicators—Mix 1 gallon of this product in 4 gallons of water to prepare a 20 percent solution. Apply the solution to emerged weeds. Apply after cranberry fruit set and no later than 30 days before harvest.

In severe infestations, reduce equipment ground speed to ensure that adequate amounts of this product are wiped on the weeds. A second treatment in the opposite direction may be beneficial.

Do not permit herbicide solution to contact desirable vegetation, including green shoots, canes or foliage.

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FALLOW AND REDUCED TILLAGE SYSTEMS

FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO SUPPLEMENTAL LABEL.

Use this product in fallow and reduced tillage systems for control of annual weeds prior to emergence of crops listed in this label. Refer to the "WEEDS CONTROLLED" section of this label for specific rates and instructions. This product may be applied using ground or aerial spray equipment. See the "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for instructions.

TANK MIXTURES

Roundup plus BANVEL
plus NONIONIC SURFACTANT

Roundup plus 2,4-D
plus NONIONIC SURFACTANT

Roundup plus GOAL™
plus NONIONIC SURFACTANT

DO NOT APPLY BANVEL OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA.

Applications of 2,4-D or Banvel must be made at least 7 days prior to planting corn.

The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed

species. Some crop injury may occur if Banvel is applied within 45 days of planting. Refer to the Banvel and 2,4-D labels for cropping restrictions and other use instructions.

Roundup plus Goal Tank Mixtures

This product alone or in tank mixtures with Goal plus 0.5 to 1 percent nonionic surfactant by total spray volume will provide control of those weeds listed below.

Make applications when weeds are actively growing and at the recommended stages of growth. Avoid spraying when weeds are subject to moisture stress, when dust is on the foliage or when straw canopy covers the weeds.

Roundup* 12 fluid oz/acre		Roundup* 16 fluid oz/acre	
Wheat	18"	Annual grasses at	
Barley	12"	left plus:	
Bluegrass,		Pyegrass,	
annual	6"	annual	6"
Barnyardgrass	6"	Chickweed	6"
Rye	6"	Groundsel	6"
		Marestail	6"
		Rocket, London	6"
		Shepherdspurse	6"
		Crabgrass	12"
		Johnsongrass,	
		seedling	12"
		Lambsquarters	12"
		Oats, wild	12"
		Pigweed, redroot	12"
		Mustards	12"

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NOTE: Use 32 fluid ounces of this product per acre where heavy weed densities exist.

Roundup® 12 fluid oz/acre + GOAL** 2 to 4 fluid oz/acre		Roundup® 16 fluid oz/acre + GOAL** 2 to 4 fluid oz/acre	
Annual grasses above plus:		Annual weeds above plus:	
Cheeseweed, common	3"	Cheeseweed, common	6"
Chickweed	3"	Groundsel	6"
Groundsel	3"	Chickweed	12"
Rocket, London	6"	Rocket, London	12"
Shepherdspurse	6"	Shepherdspurse	12"

NOTE: Use 32 fluid ounces of this product per acre in mixtures with 2 to 4 fluid ounces of Goal per acre where heavy weed densities exist.

* Maximum height or length in inches.

** Use the higher rate of Goal when weeds approach maximum recommended height or stands are dense.

These recommended tank mixtures may be applied using ground or aerial spray equipment. Refer to the "WEEDS CONTROLLED" section of this label for specific rates and instructions.

ECOFARMING SYSTEMS

The recommendations made in this section are not registered for use in California.

The Ecofarming System consists of the following rotation: winter wheat, corn/sorghum, ecotallow.

Use the following tank mixtures for control of emerged annual weeds before planting corn or sorghum in the Ecofarming System.

Roundup at 16 to 20 fluid ounces per acre
plus
2,4-D at 0.375 to 0.5 pound a.i. per acre
plus
ATRAZINE at 0.75 to 1 pound a.i. per acre
plus
LASSO* at 2.5 to 3 quarts per acre

The above tank mixture should be applied in 28-0-0 or 32-0-0 liquid fertilizer carrier at 20 to 30 gallons per acre. The liquid fertilizer may be diluted with water to achieve the desired carrier volume.

WEEDS CONTROLLED—The following weeds, up to a maximum height of 4 inches, will be controlled:

Brome, downy <i>Bromus tectorum</i>	Foxtail, yellow <i>Setaria lutescens</i>
Cheat <i>Bromus secalinus</i>	Kochia* <i>Kochia scoparia</i>
Foxtail, green <i>Setaria viridis</i>	Lettuce, prickly <i>Lactuca scariola</i>

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Pigweed, redroot

Amaranthus retrofractus

Wheat, volunteer

Triticum aestivum

Thistle, Russian

Salsola kali

*For improved control of kochia, add 4 fluid ounces per acre (0.125 pound a.i. per acre) of Banvel to the above tank mixture.

Risk of crop injury from 2,4-D or Banvel can be reduced by applying this treatment 7 to 14 days before planting.

Refer to the label booklet for Lasso herbicide for preemergence weed control achieved by this tank mixture.

Refer to the specific product labels for crop rotation restrictions and cautionary statements for all products used in these tank mixtures.

AID TO TILLAGE

This product, when used in conjunction with preplant tillage practices, will provide control of downy brome, creat, volunteer wheat, tansy mustard and foxtail. Apply 8 fluid ounces of this product plus 0.5 to 1 percent nontoxic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make applications when weeds are actively growing and before they are 6 inches in height. Application must be followed by conventional tillage practices no later than 15 days after treatment and before regrowth occurs. Allow at least 1 day after application before tillage. Tank mixtures with residual herbicides may result in reduced performance.

PASTURES

Apply this product prior to planting forage grasses and legumes.

Pasture or Hay Crop Renovation—When applied as a broadcast spray, this product controls the annual and perennial weeds listed in this label prior to planting forage grasses or legumes. Remove domestic livestock before application and wait 8 weeks after application before grazing or harvesting.

Spot Treatment—When applied as a spot treatment as recommended, this product controls annual and perennial weeds listed in this label which are growing in pastures, forage grasses and forage legumes composed of bahiagrass, bermudagrass, bluegrass, brome, fescue, orchardgrass, ryegrass, timothy, wheatgrass, alfalfa or clover.

Wiper Application—When applied as directed, this product controls or suppresses the weeds listed under "WIPER APPLICATORS" in the "SELECTIVE EQUIPMENT" section of this label.

For spot treatment and wiper application, apply in areas where the movement of domestic livestock can be controlled. No more than one-tenth of any acre should be treated at one time. Further applications may be made in the same area at 30-day intervals. Remove domestic livestock before application and wait 14 days after application before grazing livestock or harvesting.

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SUGARCANE

When applied as directed for "CROPPING SYSTEMS", under the conditions described, this product controls those emerged annual and perennial weeds listed on this label growing in or around sugarcane or in fields to be planted to sugarcane. This product will also control undesirable sugarcane.

NOTE: Where repeat treatments are necessary, do not exceed a total of 10.6 quarts of this product per acre per year. Do not apply to vegetation in or around ditches, canals or ponds containing water to be used for irrigation.

Broadcast Treatment—Apply this product in 10 to 40 gallons of water per acre on emerged weeds growing in fields to be planted to sugarcane.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

For removal of last stubble or ratoon cane, apply 4 to 5 quarts of this product in 10 to 40 gallons of water per acre to new growth having at least 7 or more new leaves. Allow 7 or more days after application before tillage.

Spot Treatment in or Around Sugarcane Fields—For dilution and rates of application using hand-held equipment, see "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" and "WEEDS CONTROLLED" sections of this label.

For control of volunteer or diseased sugarcane, make a 1 percent solution of this product in water and spray to wet the foliage of vegetation to be controlled.

NOTE: When spraying volunteer or diseased sugarcane, the plants should have at least 7 new leaves.

Avoid spray contact with healthy cane plants since severe damage or destruction may result.

Do not feed or graze treated sugarcane forage following application.

CONSERVATION TILLAGE, MINIMUM TILLAGE AND NO-TILL SYSTEMS CORN AND SOYBEANS Tank Mixtures

The recommendations made in this section are not registered for use in California.

When applied as recommended under the conditions described, the tank mixtures listed in this section control many emerged weeds, and give preemergence control of many annual weeds where corn or soybeans will be planted directly into a cover crop, established sod or in previous crop residues.

Refer to specific product labels for crop rotation restrictions and cautionary statements of all products used in these tank mixtures. For mixing instructions, see the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.

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Apply these tank mixtures in 10 to 20 gallons of water or 10 to 60 gallons of nitrogen solution per acre before, during or after planting. Do not apply these mixtures after crop emergence.

When tank mixing with residual herbicides, add an agriculturally approved nontoxic surfactant at 0.5 to 1 percent by volume of spray solution. The addition of 1 to 2-percent dry ammonium sulfate by weight may increase the performance of this product.

NOTE: When using these tank mixtures, do not exceed 4 quarts of this product per acre.

CORN

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

LESSO [®] /ALACHLOR	ATRAZINE
LARIA [®]	CYANAZINE
BULLET [®]	SIMAZINE
DUAL [®]	PROWL [®]
BICEP [®]	MICRO-TECH [®]
PARTNER [®]	

For improved burndown, this product may be tank-mixed with 2,4-D or dicamba. Applications of 2,4-D or dicamba must be made at least 7 days prior to planting corn. See the "WEEDS CONTROLLED" section for specific rate information.

SOYBEANS

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

CANOPY [®]	LOROX [®] PLUS
COMMAND [®]	PREVIEW [®]
DUAL [®]	PROWL [®]
GEMINI [®]	TURBO [®]
LESSO [®] /ALACHLOR	SCEPTER [®]
LEXONE [®]	SENCOR [®]
LINURON	SQUADRON [®]
PURSUIT [®]	PURSUIT PLUS [®]
PARTNER [®]	MICRO-TECH [®]

For improved burndown, this product may be tank-mixed with the following herbicides:

2,4-DB
2,4-D *

*See the label for 2,4-D for intervals between application and planting.

CORN AND SOYBEANS

Annual Weeds—For difficult-to-control weeds such as fall panicum, barnyardgrass, crabgrass, shattercane and broadleaf signalgrass up to 2 inches tall, and Pennsylvania smartweed up to 6 inches tall, apply this product at 2 pints per acre in these tank mixtures. For other labeled annual weeds, apply 1 to 1.5 pints of this product per acre when weeds are less than 6 inches tall, and 2 to 3 pints when weeds are over 6 inches tall. For a complete list of annual

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weeds controlled, see the "WEEDS CONTROLLED" section of this label.

Perennial Weeds—At normal application times in minimum tillage systems, perennial weeds may not be at the proper stage of growth for control. See the "WEEDS CONTROLLED" section of this label for the proper stage of growth for perennial weeds.

Use of 2 to 4 quarts of this product per acre in the tank mixtures mentioned above, under these conditions provides top kill and reduces competition from many emerged perennial grass and broadleaf weeds. For emerged perennial weeds controlled, see the "WEEDS CONTROLLED" section of this label.

To obtain the desired stage of growth, it may be necessary to apply this product alone in the late summer or fall and then follow with a label-approved, seedling weed control program at planting.

USE OF THESE TANK MIXTURES FOR BERMUDAGRASS OR JOHNSONGRASS CONTROL IN MINIMUM TILLAGE SYSTEMS IS NOT RECOMMENDED. For bermudagrass control, follow the instructions under "CONTROL OF PERENNIAL WEEDS" section of this label and then use a label-approved, seedling weed-control program in a minimum tillage or conventional tillage system. For Johnsongrass control, follow instructions under "CONTROL OF PERENNIAL WEEDS" section of this label, and then use a label-approved, seedling weed-control program with conventional tillage.

PREHARVEST APPLICATIONS

When applied as directed under the conditions described, this product controls annual and perennial weeds listed on this label prior to the harvest of cotton and soybeans.

SOYBEANS

Apply after pods have set and lost all green color. Allow a minimum of 7 days between application and harvest of soybeans. Care should be taken to avoid excessive seed shatter loss due to ground application equipment.

Do not graze or harvest treated crop for livestock feed within 25 days of last preharvest application.

DO NOT APPLY MORE THAN 5 QUARTS PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS.

DO NOT APPLY MORE THAN 1 QUART PER ACRE OF THIS PRODUCT BY AIR.

For specific rates and application instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of the Roundup label booklet.

This product may be applied by both ground and aerial application equipment. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of the Roundup label booklet for instructions for ground and aerial applications.

NOTE: It is not recommended that soybeans grown for seed be treated because a reduction in germination or vigor may occur.

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The use of this product for preharvest soybeans is not registered in California.

COTTON

Broadcast Applications—This product may be applied using either aerial or ground spray equipment. For ground applications with broadcast equipment, apply this product in 10 to 20 gallons of water per acre. For aerial applications, apply this product in 3 to 10 gallons of water per acre.

FOR AERIAL APPLICATIONS, REFER TO THE "APPLICATION EQUIPMENT AND TECHNIQUES" AND "AERIAL EQUIPMENT" SECTIONS OF THIS LABEL.

FOR AERIAL APPLICATIONS IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR.

Weed Control—For specific rates of application and instructions for control of various annual and perennial weeds for this product used alone or in the following tank mixtures, see the "WEEDS CONTROLLED" section of this label.

To control Johnsongrass using multiple-directed or broadcast over-the-top spray equipment, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure complete coverage.

For partial control of field bindweed, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre. Apply when bindweed is actively growing and 12 inches or greater in length. Reduced performance may result if bindweed is under drought stress.

TANK MIXTURES

Roundup plus DEF™ 6

Roundup plus Folex™

Roundup plus Prep™

Roundup plus Prep plus DEF 6 or Folex

When applied as recommended under the conditions described, these tank mixtures control annual and perennial weeds listed on this label prior to the harvest of cotton. For application guidelines, precautions and use-rates, refer to the DEF, Folex and Prep labels.

This product when tank mixed with DEF 6 or Folex defoliants may provide enhancement of cotton leaf drop and regrowth inhibition.

Timing of Application—Apply this product or these tank mixtures for preharvest weed control after 60 percent of the cotton bolls have opened.

NOTE: DO NOT APPLY TO CROPS GROWN FOR SEED. Allow a minimum of 7 days between application and harvest. Do not feed or graze treated cotton forage or hay following preharvest applications.

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TREE AND VINE CROPS

This product is recommended for weed control in established groves, vineyards, and orchards, or for site preparation prior to transplanting crops listed in this section. Applications may be made with boom equipment, COA, shielded sprayers, hand-held and high-volume wands, lances, orchard guns, or with water applicator equipment, except as directed in this section. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for specific information on use of equipment.

When applying this product, refer to the "WEEDS CONTROLLED" section of this label and to specific recommendations in this section for rates to be used.

NOTE

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual weed control. For subsequent weed control, use repeated applications of this product. Do not apply more than 10.6 quarts of this product per acre per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

AVOID PAINTING OUT STUMPS WITH THIS PRODUCT AS INJURY RESULTING FROM ROOT GRAFTING MAY OCCUR IN ADJACENT TREES.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

For specific rates of applications and instructions, see the "WEEDS CONTROLLED" section of this label, and to specific recommendations which follow.

MIDDLES MANAGEMENT

FOR ANNUAL WEEDS IN MIDDLES BETWEEN ROWS OF TREE AND VINE CROPS

For citrus crops treat uniformly between trees.

Roundup

Roundup plus GDAL™

This product alone or in mixtures with Goal will control or suppress the annual weeds listed below.

Apply the recommended rates of this product, either alone or in mixtures with Goal, plus 0.5 to 1 percent nonionic surfactant by spray volume in 3 to 10 gallons of water per acre. Apply when weeds are actively growing and less than 6 inches in height or diameter. If weeds are under drought stress, irrigate prior to application. Reduced control may occur if weeds have been mowed prior to application. Up to 48 fluid ounces

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per acre of this product may be used to control weeds, which have been mowed, are stressed, or are growing in dense populations.

WEED SPECIES	MAXIMUM HEIGHT/ DIAMETER (INCHES)	RATE PER ACRE	
		ROUNDUP™ (FLUID OUNCES)	GOAL (FLUID OUNCES)
Barley <i>Hordeum vulgare</i>	6	8	—
Bluegrass, annual <i>Poa annua</i>			
Barnyardgrass <i>Echinochloa crus-galli</i>	6	12	—
Chickweed, common <i>Stellaria media</i>			
Red Maids <i>Calandrinia ciliata</i>			
Crabgrass <i>Digitaria</i> spp.	6	16	—
Fleabane, hairy <i>Conyza bonariensis</i>		OR	
Groundsel, common <i>Senecio vulgaris</i>		16 to 32 + 4 to 16**	
Junglerice <i>Echinochloa colonum</i>			

Lambsquarters, common <i>Chenopodium album</i>	6	16	—
Pigweed, redroot <i>Amaranthus retroflexus</i>		OR	
Rocket, London <i>Sisymbrium irio</i>		16 to 32 + 4 to 16**	
Ryegrass, common <i>Lolium multiflorum</i>			
Shepherdspurse <i>Capsella bursa-pastoris</i>			
Sowthistle, annual <i>Sanctus oleraceus</i>			
Cheeseweed, common <i>Malva</i> spp.	3	12 to 32 + 4 to 16	
Cheeseweed, common <i>Malva</i> spp.	6	16 to 32 + 4 to 16	
Filaree* <i>Erodium</i> spp.			
Horseweed/Marestail <i>Conyza canadensis</i>			
Nettle, stinging <i>Urtica dioica</i>			
Purselane, common* <i>Portulaca oleracea</i>			

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*Suppression only.

**The mixture of this product plus Goal is recommended when weeds are stressed or growing in dense populations.

STRIPS

FOR ANNUAL AND PERENNIAL WEEDS IN STRIPS OF TREE AND VINE CROPS

TANK MIXTURES WITH RESIDUAL HERBICIDES

When applied as a tank mixture, this product provides control of the emerged annual weeds and control or suppression of emerged perennial weeds listed in this label. The following residual herbicides will provide preemergence control of those weeds listed in the individual product labels.

- Roundup plus GOAL™ 1.6E ■
- Roundup plus KARMEX™ DF ■
- Roundup plus KROVAR™ I ■
- Roundup plus KROVAR™ II ■
- Roundup plus SIMAZINE, PRINCEP CALIBER™ 90 ■
- Roundup plus SIMAZINE 4L ■
- Roundup plus SIMAZINE 80W ■
- Roundup plus SOLICAM™ 80DF ■

- Roundup plus SURFLAN™ AS ■
- Roundup plus SURFLAN 75W ■
- Roundup plus SIMAZINE (80W, or 4L, or PRINCEP CALIBER 90) plus SURFLAN (AS or 75W) ■
- Roundup plus GOAL (1.6E) plus SURFLAN (AS or 75W) ■
- Roundup plus GOAL (1.6E) plus SIMAZINE (80W, or 4L, or PRINCEP CALIBER 90) ■
- Roundup plus GOAL (1.6E) plus SURFLAN (AS or 75W) plus SIMAZINE (80W, 4L, or PRINCEP CALIBER 90) ■

Do not apply these tank mixtures in Puerto Rico.

When tank-mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution.

Refer to the individual product labels for specific crops, rates, geographical restrictions and precautionary statements.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the labels of all products.

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RECOMMENDED RATES

Annual Weeds—Apply 1 to 5 quarts per acre of this product in these tank mixtures. Use rates at the higher end of the recommended range when weeds are stressed, growing in dense populations or are greater than 12 inches tall.

Perennial Weeds—Apply 1 pint to 5 quarts per acre of this product in these tank mixtures to control or suppress perennial weeds. Follow the recommendations in the "WEEDS CONTROLLED" section of this label for stage of growth and application rates for specific perennial weeds.

■ **Roundup plus GOAL plus**
SIMAZINE/SURFLAN ■

This product plus low rates of Goal in 3-way or 4-way mixtures with simazine and/or Surflan will provide postemergence control of the weeds listed below.

Refer to the individual simazine and Surflan labels for pre-emergence rates, weeds controlled, precautionary statements and other important information.

Apply these tank mixtures in 3 to 40 gallons of water. Add 0.5 to 1 percent nonionic surfactant by total spray-volume to the spray solution.

Apply 1 to 5 quarts per acre of this product plus 4 to 48 fluid ounces per acre of Goal plus labeled rates of simazine and/or Surflan to control the following weeds:

Barley, wild	Horseweed/Marestail
<i>Hordeum leporinum</i>	<i>Coryza canadensis</i>

Bluegrass, annual	Nettle, stinging
<i>Poa annua</i>	<i>Urtica dioica</i>
Cheeseweed, common	Pineappleweed
<i>Mahoe spp.</i>	<i>Matricaria matricariodes</i>
Chickweed, common	Rocket, London
<i>Stellaria media</i>	<i>Sisymbrium irio</i>
Filaree*	Shepherdspurse
<i>Erodium spp.</i>	<i>Capsella bursa-pastoris</i>
Fleabane, hairy	Sowthistle, annual
<i>Coryza bonariensis</i>	<i>Sonchus oleraceus</i>
Groundsel, common	
<i>Senecio vulgaris</i>	

*Use a minimum of 1.5 quarts of this product in these mixtures.

NOTE: This recommendation does not preclude the use of Goal in these mixtures at higher, labeled rates for preemergence weed control.

■ **PERENNIAL GRASS SUPPRESSION**
ORCHARD FLOORS ■

When applied as directed, this product will suppress vegetative growth as indicated below.

Bahiagrass

This product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with a single application and approximately 120 days with sequential applications. Apply this prod-

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uct 1 to 2 weeks after full green-up or after mowing to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus nonionic surfactant may be made at approximately 45-day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces may be made approximately 45 days after the last application.

Bermudagrass

For burndown, apply 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre. Use 1 quart of this product in 3 to 20 gallons of water per acre east of the Rocky Mountains. Use 1 to 2 quarts of this product in 3 to 10 gallons of water per acre west of the Rocky Mountains. Use this treatment only if reduction of the bermudagrass stand can be tolerated. When burndown is required prior to harvest, allow at least 21 days to ensure sufficient time for burndown to occur.

Suppression only (east of the Rocky Mountains)—Apply 6 to 16 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a mini-

mum height of 3 inches is maintained. Rates of 6 to 10 fluid ounces of this product plus nonionic surfactant should be used in shaded conditions or where a lesser degree of suppression is desired. Sequential applications may be made when regrowth occurs and bermudagrass injury and stand reduction can be tolerated.

Suppression only (west of the Rocky Mountains)—Apply 16 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre to bermudagrass up to 6 inches in height and no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Sequential applications may be made when regrowth occurs and bermudagrass injury and stand reduction can be tolerated.

Cool Season Grass Covers

For suppression of tall fescue, fine fescue, orchardgrass and quackgrass, apply 8 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. For best suppression, add ammonium sulfate to the spray solution at a rate of 2 percent by weight or 17 pounds per 100 gallons of spray solution.

For suppression of Kentucky bluegrass covers, apply 6 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant. Do not add ammonium sulfate.

For best results, mow cool-season grass covers in the spring to even their height and apply the recommended rate of this product 3 to 4 days after mowing. Avoid treating cool season grass covers under poor growing conditions, such as drought stress (drip irrigation), disease or insect damage.

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LOW VOLUME APPLICATION (FLORIDA AND TEXAS)

For burndown or control of the weeds listed, apply the recommended rates of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 30 gallons of water per acre. Where weed foliage is dense, use 10 to 30 gallons of water per acre.

Annual Weeds

Goatweed—Apply 2 to 3 quarts per acre of this product plus 17 pounds of ammonium sulfate per 100 gallons of water plus 0.5 to 1 percent nonionic surfactant by total spray volume. Apply in 20 to 30 gallons of water per acre when plants are actively growing. Use 2 quarts per acre when plants are less than 8 inches tall and 3 quarts per acre when plants are greater than 8 inches. If goatweed is greater than 8 inches tall, the addition of Krovar II or Karmex may improve control. Use labeled rates for these residual products.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the Krovar II and Karmex labels.

Perennial Weeds

Apply when weeds are actively growing and at the growth stages listed in the "PERENNIAL WEEDS CONTROLLED" section of this label. If perennial weeds are mowed, allow weeds to regrow to the recommended stage of growth.

S = Suppression	B = Burndown			
PC = Partial control	C = Control			
WEED SPECIES	Roundup® RATE PER ACRE			
	1 qt 2 qts 3 qts 5 qts			
Bermudagrass	B • PC C			
Guineagrass				
Texas and Florida Ridge	B C C C			
Florida Flatwoods	• S C C			
Paragrass	B C C C			
Turpedograss	S • PC C			

TREE CROPS

Citrus*: calamondin, chironja, citron, grapefruit, kumquat, lemon, lime, mandarin orange, orange, pummelo, tangelo, tangerine, tanger.

Nuts**: almond, beechnut, Brazil nut, butternut, cashew, chestnuts, chinquapin, hickory, hazel nut, hickory nut, macadamia, pecan, pistachio, walnut.

Pome Fruit*: apple, loquat, mayhaw, pear, quince.

Stone Fruit***: apricots, cherries, nectarines, olives, peaches, plums/prunes.

For cherries, any application equipment listed in this section may be used in all states.

For citron and olives, apply as a directed spray only.

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Any application equipment listed in this section may be used in apricots, nectarines, peaches and plums/prunes growing in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Texas, Utah and Washington, except for peaches grown in the states specified in the following paragraph. In all other states use wiper equipment only.

For PEACHES grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee only, apply with a shielded boom sprayer or shielded wiper applicator, which prevents any contact of this product with the foliage or bark of trees. Apply no later than 90 days after first bloom. Applications made after this time may result in severe damage. Remove suckers and low-hanging limbs at least 10 days prior to application. Avoid applications near trees with recent pruning wounds or other mechanical injury. Apply only near trees which have been planted in the orchard for 2 or more years. EXTREME CARE MUST BE TAKEN TO ENSURE NO PART OF THE PEACH TREE IS CONTACTED.

Tropical Fruit: acerola*, atemoya*, avocado*, banana* (plantains)****, breadfruit*, canistel*, carambola*, cherimoya*, cocoa beans*, coffee****, dates*, figs*, genip*, guava*****, jaboticaba*, jackfruit*, longan*, lychee*, mango*, mayhaw*, papaya*****, passion fruit*, persimmons*, pomegranate*, sapodilla*, sapote*, sour sop*, sugar apple*, tamarind*, tea*. In coffee and banana, delay applications 3 months after transplanting to allow the new coffee or banana plant to become established.

NOTE:

- * Allow a minimum of 14 days between last application and harvest.
- ** Allow a minimum of 3 days between last application and harvest of these crops, except for pistachio nuts. For pistachio nuts, allow a minimum of 21 days between last application and harvest.
- *** Allow a minimum of 17 days between last application and harvest.
- **** Allow a minimum of 28 days between last application and harvest.
- ***** Allow a minimum of 1 day between last application and harvest.

VINE CROPS

Kiwi Fruit

Grapes: Any variety of table, wine or raisin grape may be treated with any equipment listed in this section.

Applications should not be made when green shoots, canes, or foliage are in the spray zone.

Allow a minimum of 14 days between last application and harvest.

In the northeast and Great Lakes regions, applications must be made prior to the end of bloom stage of grapes to avoid injury.

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- * Butlet, Lasso, Micro-Tech, Partner and Lariat are registered trademarks of Monsanto Company.
- * Dursl, Krovar, Escort, Telar, Canopy, Blades, Gemini, Lexone, Lorca Plus, Preview, and Xarmex are trademarks of E.I. duPont de Nemours and Company.
- * Dual, Bicep, Princep and Caliber are trademarks of Ciba-Geigy Corporation.
- * Surflan is a trademark of Danco Products Company.
- * Sarvel and Solscan are trademarks of Sandia, Inc.
- * Ronstar, Folex and Prep are trademarks of Rhone-Poulenc, Inc.
- * Goal is a trademark of Rohm and Haas Company.
- * Sensor and Turbo are trademarks of Bayer AG.
- * Prowl, Pursuit, Pursuit Plus, Scepter and Squadron are trademarks of American Cyanamid Company.
- * Command is a trademark of FMC Corporation.
- * DEF is a trademark of Mobay Chemical Company.
- * Microtrol is a trademark of Union Carbide Agricultural Products, Inc.
- * Thru-Valve is a trademark of Walckron Specialties, Inc.

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This product is protected by U.S. Patent No. 4,405,531. Other patents pending. No license granted under any non-U.S. patent(s).

EPA Reg. No. 524-445

898.07-000.29/53

In case of an emergency involving this product,
Call Collect, day or night, (314) 694-4000.

© MONSANTO COMPANY 1993

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI, 63167 U.S.A.

128

371

This product is protected by U.S. Patent No. 4,405,531. Other patents pending. No license granted under any non-U.S. patent(s).

EPA Reg. No. 524-445

898.07-000.29/53

In case of an emergency involving this product,
Call Collect, day or night, (314) 694-4000.

© MONSANTO COMPANY 1993

ACCEPTED

APR - 6 1994

Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
this pesticide is
registered for use in the U.S.A.
EPA Reg. No. 524-445

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Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005.

December 21, 1993

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Submission of Final Printed Label Booklets and Notification of Minor Label Changes

Dear Sir:

Monsanto is submitting final printed labels of a Roundup® herbicide label booklet for your files. This label was approved by the Agency on December 17, 1992.

We are also notifying you of the following minor changes that were made to the label:

- The statements required by the Worker Protection Standard have been included in this label (pp. 5-6, 8-9). These changes were submitted to the Agency on July 22, 1993; we have not yet received a response.
- Under the first aid statement for ingestion on page 5 we have added the statement "Never give anything by mouth to an unconscious person" at the request of California.
- The toll-free telephone number for more product information on page 8 has been changed.
- On page 16, we have noted that mistblowers are not registered for use in California or Arizona.
- We have elected not to print the uses for forestry site preparation, silvicultural

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sites and rights-of-way in this version of the label (pp. 17, 60).

- The common name of the weed *conyza bonariensis* was incorrectly given as "fleabane flaxleaf". It has been corrected to read "hairy flaxleaf" on pages 36, 108, and 113.
- We have deleted the recommendation for a tank mixture with Goal to control yellow nutsedge, page 48.
- We have elected not to print pipelines and power and telephone rights-of ways as sites for noncrop use, page 60.
- We have incorporated the new 3-day preharvest interval (phi) for tree nuts on pages 89 and 119. This reduced phi was approved by the Agency on June 17, 1993. The phi for pistachios remains at 21 days.

Enclosed are five (5) copies of the label (version 1993-2: 898.07-000.29/53).

If you have any questions regarding this submission, please contact Dr. Russ Schneider or me.


Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider
S.A. Adams

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(A) 	United States Environmental Protection Agency Office of Pesticide Programs (H7505C) Washington, DC 20460	<input type="checkbox"/> Registration	OPP Identifier Number 207755
		<input checked="" type="checkbox"/> Amendment	
Application for Pesticide:		<input checked="" type="checkbox"/> Other	

Section I

1. Company/Product Number 524-445	2. EPA Product Manager Robert J. Taylor	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Roundup® Herbicide	PM# 25	
5. Name and Address of Applicant (Include ZIP Code) Monsanto Company 700 14th Street, N.W., Suite 1100 Washington, D.C. 20005 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section II

<input type="checkbox"/> Amendment - Explain below	<input checked="" type="checkbox"/> Final printed labels in response to Agency letter dated 12/17/92
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - explain below.

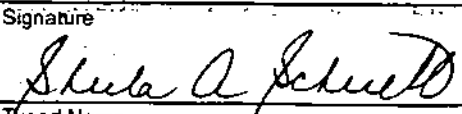
Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of final printed label booklets and notification of minor label changes

Section III

1. Material This Product Will Be Packaged In:			
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2. Type of Container <input type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
* Certification must be submitted.			
3. Location of Net Contents Information <input type="checkbox"/> Label <input checked="" type="checkbox"/> Container	4. Size(s) of Retail Container various	5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input checked="" type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label Is Affixed To Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input checked="" type="checkbox"/> Other (vinyl glued)			

Section IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Dr. Russell P. Schneider	Title Agricultural Regulation Director	Telephone No. (Include Area Code) (202) 783-2460
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped) 375
2. Signature 	3. Title Manager, Regulatory Affairs	
4. Typed Name Sheila A. Schuette, Ph.D.	5. Date Dec. 21, 1993	

PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE:

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS:

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];
2. Confidential Statement of Formula (EPA Form 8570-4);
3. Formulator's Exemption Statement (EPA Form 8570-27);
4. Five copies of draft labeling;
5. Three copies of any data submitted;
6. Authorization letter where applicable;
7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission.

Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I

SECTION I - This section must be completed, as applicable, for all registration actions.

1. **Company/Product Number** - Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
2. **EPA Product Manager** - If known, fill in the name and PM number of the EPA Product Manager.
3. **Proposed Classification** - Specify the proposed classification of this product.
4. **Product Name** - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
5. **Name and Address of Applicant** - The name of the firm or person and address shown in your application is the person or Firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
6. **Expedited Review** - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. **Subject of submission** - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information)

SECTION 11' (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. **Type of Packaging** - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.
2. **Type of Retail Container** - Indicate type of container in which product will be marketed.
3. **Location of Net Contents** - Specify the net contents of all retail containers for your product.
4. **Size(s) of Retail Container** - Specify the net contents of all retail containers for your product.
5. **Location of Use Directions** - Indicate the location of the use directions for your product.
6. **Manner in which label is affixed to product** - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point)

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "me-too," reregistration, etc.

- 1-5. Self-explanatory.
6. EPA Use Only.

1. Interstate ☒ Yes ☐ No
 2. In-state ☐ Yes ☒ No

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_____ Class Report (1)

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Alternate _____ (1) Not Submitted
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**Special Only For New Candidates/New Users
Power)**

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Excluded Classification: Exemption Period: Initial Applicable:

| 1110 | Conditional | Registration | Data | Required | Enter | Due | Dates Only |
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APR - 6 1994

Dr. Sheila A. Schuette
Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, DC 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Update Aerial Application In California)
EPA Registration No. 524-445
Your Application Dated March 18, 1994

The labeling referred to above, submitted in connection with the registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is acceptable. A stamped copy of labeling is enclosed for your records.

Sincerely,

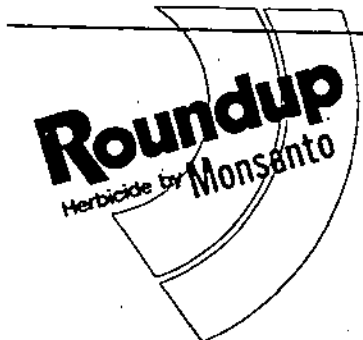
Robert J. Taylor *UKW*
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (E7505C)

378

SUPPLEMENTAL LABELING

READ AND FOLLOW THE ENTIRE LABEL BOOKLET FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for ROUNDUP herbicide and this supplement.



ACCEPTED
APR - 6 1994
Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under
EPA Reg. No. 524-445

EPA Reg. No. 524-445

FOR AERIAL APPLICATION IN CALIFORNIA ONLY.

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

ROUNDUP® is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of the herbicide application.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of the Roundup label booklet for essential product performance information.

See the "CROPPING SYSTEMS" of the label booklet for specific recommendations on the use of this product.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS, OR FRUIT OF DESIRABLE CROPS, PLANTS, TREES, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Aerial applications of this product are allowed in the following situations:

1. In fallow and reduced tillage systems prior to the emergence or transplanting of labeled crops.
2. In cotton, prior to harvest. Refer to the ROUNDUP® booklet for specific pre harvest application instructions.

Do not plant subsequent crops other than those listed in the label booklet for this product for 30 days following application.

When applied as recommended, under the conditions described, this product controls

annual and perennial weeds listed in the label booklet.

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR.

AERIAL EQUIPMENT

Use the recommended rates of this product in 3 to 15 gallons of water per acre.

Do not apply to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

AVOID DRIFT - DO NOT APPLY WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITION WHICH WILL ALLOW DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.

Use the following guidelines when aerial applications are made near crops or desirable perennial vegetation after bud break and before total leaf drop, and/or near other desirable vegetation or annual crops.

1. Do not apply within 100 feet of all desirable vegetation or crop(s).
2. If wind up to 5 miles per hour is blowing toward desirable vegetation or crop(s), do not apply within 500 hundred feet of the desirable vegetation or crop(s).
3. Winds blowing from 5 to 10 miles per hour toward desirable vegetation may require buffer zones in excess of 500 feet.

4. Do not apply when winds are in excess of 10 miles per hour or when inversion conditions exist.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which disperse spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase nozzle pressure.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information and all other information appearing on the additive label.

Ensure uniform application - to avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion.

Read the "LIMIT OF WARRANTY AND LIABILITY" in the label booklet for Roundup herbicide before using this product. These terms apply to this supplemental labeling and if those terms are not acceptable, return this product unopened at once.

21001S1-2-3/17/94
©MONSANTO COMPANY 1994
MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MO 63167

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Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

March 18, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Submission of Final Printed Labels:
Supplemental Label for Aerial Application in California

Dear Sir:

Monsanto is submitting final printed labels of a Roundup® herbicide supplemental label for your files. This supplemental label, which provides instructions for aerial applications in California, was approved by the Agency on March 18, 1991. We have made the following minor changes to update the label:

- Added the Spanish signal word.
- Updated the wetlands statement.

Enclosed are five (5) copies of the label (version 21001S1-2-3/17/94).


If you have any questions regarding this submission, please contact Dr. Russ Schneider or me.

Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

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|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| (A)  | United States Environmental Protection Agency
Office of Pesticide Programs (H7505C)
Washington, DC 20460 | <input type="checkbox"/> Registration
<input type="checkbox"/> Amendment
<input checked="" type="checkbox"/> Other | OPP Identifier Number

207780 |
| | Application for Pesticide: | | |

Section I

| | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Company/Product Number
524-445 | 2. EPA Product Manager
Robert J. Taylor | 3. Proposed Classification
<input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted |
| 4. Company/Product (Name)
Roundup® Herbicide | PM#
25 | |
| 5. Name and Address of Applicant (Include ZIP Code)
Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, D.C. 20005
<input type="checkbox"/> Check if this is a new address | | 6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to:

EPA Reg. No. _____
Product Name _____ |

Section II

| | |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Amendment - Explain below | <input checked="" type="checkbox"/> Final printed labels in response to Agency letter dated 3/18/91 |
| <input type="checkbox"/> Resubmission in response to Agency letter dated _____ | <input type="checkbox"/> "Me Too" Application. |
| <input type="checkbox"/> Notification - Explain below. | <input type="checkbox"/> Other - explain below. |

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of final printed labels: Supplemental label for aerial application in California

Section III

| | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| 1. Material This Product Will Be Packaged In: | | | | 2. Type of Container | |
| Child-Resistant Packaging
<input type="checkbox"/> Yes
<input checked="" type="checkbox"/> No | Unit Packaging
<input type="checkbox"/> Yes
<input checked="" type="checkbox"/> No | Water Soluble Packaging
<input type="checkbox"/> Yes
<input checked="" type="checkbox"/> No | | <input type="checkbox"/> Metal | <input checked="" type="checkbox"/> Plastic |
| | | | | <input type="checkbox"/> Glass | <input type="checkbox"/> Paper |
| | | | | <input type="checkbox"/> Other (Specify) _____ | |
| * Certification must be submitted. | | | | | |
| 3. Location of Net Contents Information
<input type="checkbox"/> Label <input checked="" type="checkbox"/> Container | | 4. Size(s) of Retail Container
various | | 5. Location of Label Directions
<input checked="" type="checkbox"/> On Label
<input checked="" type="checkbox"/> On Labeling accompanying product | |
| 6. Manner In Which Label is Affixed To Product
<input type="checkbox"/> Lithograph
<input type="checkbox"/> Paper glued
<input type="checkbox"/> Stenciled | | <input checked="" type="checkbox"/> Other (vinyl glued) | | | |

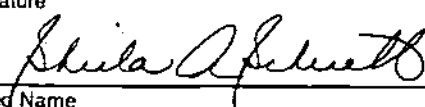
Section IV

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|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------------------|
| 1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.) | | |
| Name
Dr. Russell P. Schneider | Title
Agricultural Regulation Director | Telephone No. (include Area Code)
(202) 733-2460 |

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

6. Date Application Received
(Stamped)

| | |
|-----------------------------------------------------------------------------------------------------|-----------------------------------------|
| 2. Signature
 | 3. Title
Manager, Regulatory Affairs |
| 4. Typed Name
Sheila A. Schuette, Ph.D. | 5. Date
March 18, 1994 |

PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). [If not exempted by 40 CFR 152.81 (b) (4)];
2. Confidential Statement of Formula (EPA Form 8570-4);
3. Formulator's Exemption Statement (EPA Form 8570-27);
4. Five copies of draft labeling;
5. Three copies of any data submitted;
6. Authorization letter where applicable;
7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission.

Submission of Data - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

1. **Company/Product Number** - Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
2. **EPA Product Manager** - If known, fill in the name and PM number of the EPA Product Manager.
3. **Proposed Classification** - Specify the proposed classification of this product.
4. **Product Name** - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
5. **Name and Address of Applicant** - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
6. **Expedited Review** - FIFRA section 3 (c) 3 (8) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. **Subject of submission** - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This Section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. **Type of Packaging** - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.
2. **Type of Retail Container** - Indicate type of container in which product will be marketed.
3. **Location of Net Contents** - Specify the net contents of all retail containers for your product.
4. **Size(s) of Retail Container** - Specify the net contents of all retail containers for your product.
5. **Location of Use Directions** - Indicate the location of the use directions for your product.
6. **Manner in which label is affixed to product** - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This Section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "me-too," reregistration, etc.

- 1-5. Self-explanatory.
6. EPA Use Only.

APR - 6 1994

Dr. Sheila A. Schuette
Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, DC 20005

Dear Dr. Schuette:

Subject: Roundup Herbicide (Use of Hooded Sprayers in Grain Sorghum and Corn)
EPA Registration No. 524-445
Your Letters Dated January 10, 1994

This acknowledges receipt of your applications dated January 10, 1994, requesting use of hooded sprayers in grain sorghum and corn. These requests have been routed to the proper discipline for scientific review and evaluation. Further action will await completion of scientific review and evaluation.

Sincerely,

Robert J. Taylor ^{VKw}
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (B7505C)

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Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

January 10, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Supplemental Label for Use with Hooded Sprayers in Grain Sorghum

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of a supplemental label for Roundup herbicide for use with hooded sprayers in grain sorghum (milo). Monsanto believes that the proposed label is supported by the data contained in MRID 00108203, which provides residue data for spot treatments in grain sorghum. We discussed this proposed use with Mr. Robert S. Quick of EPA at a meeting on July 28, 1993. Our rationale is discussed in detail below.

Spot Treatment Use in Grain Sorghum (Milo)

In July, 1978, Monsanto submitted residue data for use of glyphosate as a spot treatment in grain sorghum and several other crops (MRID 00108203). In this study, a 10' x 10' area was treated as a directed postemergent spray at a rate of 4.5 lb a.e./A (equivalent to 6 qt/A of Roundup) and samples were taken at various distances from the treated area (0, 10, 25 and 100'). The 0' sampling point was at the border of the spot treatment application, in the area where the grain sorghum

plants survived and could be harvested. No detectable residues of glyphosate or its metabolite were found in the sorghum grain heads, even at the 0' sampling point. Residues of glyphosate at 0.07 ppm were found in both the sorghum silage and fodder samples at the 0' sampling point, but not at any of the more distant sampling points. No detectable residues of the metabolite were found in any of the silage or fodder samples. Based on these data and the existing 0.1 ppm tolerance on grain crops, EPA approved this spot treatment use on July 10, 1979.

Hooded Sprayers

Hooded sprayers are a recent innovation in shielded sprayer technology that have been commercially available for only the past few years. Unlike traditional shielded sprayers, these hooded sprayers are completely enclosed on all four sides and the top. They are mounted on the tractor such that the bottom of the hood is in very close contact with the ground, and herbicide applications are made to the ground between the crop rows. The spray nozzles for applying the herbicide are located on the inside of the hood, so that only the weeds in between the crop rows are contacted with the spray; the crop itself is extremely well shielded from the herbicide.

Proposed Use of Hooded Sprayers in Grain Sorghum (Milo)

Monsanto believes that the design of the hooded sprayers will result in equal or lesser contact of the herbicide spray with the grain sorghum than the approved spot treatment use. The samples taken from the 0' sampling point provide a good representation of the maximum residue level that would be expected at the point where the hooded sprayer contacts the crop row. In addition, the hooded sprayer application will occur earlier than the spot treatment application -- approximately 4-6 weeks after crop emergence. We believe, therefore, that the treated grain sorghum will not contain detectable glyphosate residues and that the current 0.1 ppm tolerance for grain will not be exceeded. A prohibition against feeding or grazing treated sorghum forage and fodder has also been included on the label.

Monsanto requests that the Agency approve and stamp the enclosed supplemental label. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed. If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider
L.L. Gingerich

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Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

January 10, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
Supplemental Label for Use with Hooded Sprayers in Corn

Dear Sir:

Enclosed for Agency review and approval are five (5) copies of a supplemental label for Roundup herbicide for use with hooded sprayers in corn. Monsanto believes that the proposed label is supported by the data contained in MRID 00108203, which provides residue data for spot treatments in corn. We discussed this proposed use with Mr. Robert S. Quick of EPA at a meeting on July 28, 1993. Our rationale is discussed in detail below.

Spot Treatment Use in Corn

In July, 1978, Monsanto submitted residue data for use of glyphosate as a spot treatment in corn and several other crops (MRID 00108203). In this study, a 10' x 10' area was treated as a directed postemergent spray at a rate of 4.5 lb a.i./A (equivalent to 6 qt/A of Roundup) and samples were taken at various distances from the treated area (0, 10, 25 and 100'). The 0' sampling point was at the border of the spot treatment application, in the area where corn plants survived and

could be harvested. No detectable residues of glyphosate or its metabolite were found in any of the corn grain or stover samples even at the 0' sampling point. Based on these data and the existing 0.1 ppm tolerance on grain crops, EPA approved this spot treatment use on July 10, 1979.

Hooded Sprayers

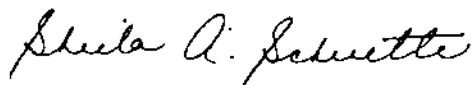
Hooded sprayers are a recent innovation in shielded sprayer technology that have been commercially available for only the past few years. Unlike traditional shielded sprayers, these hooded sprayers are completely enclosed on all four sides and the top. They are mounted on the tractor such that the bottom of the hood is in very close contact with the ground, and herbicide applications are made to the ground between the crop rows. The spray nozzles for applying the herbicide are located on the inside of the hood, so that only the weeds in between the crop rows are contacted with the spray; the crop itself is extremely well shielded from the herbicide.

Proposed Use of Hooded Sprayers in Corn

Monsanto believes that the design of the hooded sprayers will result in equal or lesser contact of the herbicide spray with the corn than the approved spot treatment use. The samples taken from the 0' sampling point provide a good representation of the maximum residue level that would be expected at the point where the hooded sprayer contacts the crop row. In addition, the hooded sprayer application will occur earlier than the spot treatment application -- approximately 4-6 weeks after crop emergence. We have also reduced the application rate from 6 qt/A to a maximum of 3 qt/A. We believe, therefore, that the treated corn will not contain detectable glyphosate residues and that the current 0.1 ppm tolerance for grain will not be exceeded. A prohibition against feeding or grazing treated corn forage and fodder has also been included on the label.

Monsanto requests that the Agency approve and stamp the enclosed supplemental label. An Application for Pesticide Amendment and Certification with Respect to Citation of Data are also enclosed. If you have any questions regarding this submission, please contact Russ Schneider or me.

Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider
L.L. Gingerich

388

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

*Routed with label
amendment*

August 10, 1993

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Memorandum of Understanding:
July 28, 1993 Meeting on Hooded Sprayers**

Dear Sir:

On Wednesday, July 28, 1993, representatives from Monsanto and EPA met to discuss the use of hooded sprayers in several crops and to determine whether existing residue data could be used to support these uses. The following is a summary of what transpired during the meeting.

In attendance were Robert Taylor and Robert Quick of EPA, and Lyle Gingerich, Sheila Schuette and Russ Schneider of Monsanto. At the start of the meeting, Monsanto showed photographs of the hooded sprayers themselves and how they are currently being used in cotton and soybeans. The discussion then turned to what data would be required to obtain a label for the use of hooded sprayers in other crops.

Sugarcane:

After some discussion about the methodology of the studies, EPA agreed that the existing interline spot-treatment data for sugarcane would likely support the use of hooded sprayers in this crop. Monsanto will prepare a label and make a submission in the near future.

Corn / Grain Sorghum (Milo):

It is possible that existing spot treatment data can be used to support the use of hooded sprayers in corn and milo. Since details concerning these studies were not available at the meeting, Monsanto will review the data; if these data are pertinent, label submissions will be made.

EPA did agree that preharvest tolerances for corn and milo, which Monsanto hopes to obtain over the next few years, would cover the relatively low residue levels expected from the hooded sprayer application.

Representative Crops:

To obtain a label for general use of hooded sprayers in all crops, residue studies would need to be conducted. These studies could be performed on representative crops from several diverse crop groupings (e.g., cereal grains, fruiting vegetables, root and tuber vegetables). It was agreed that these trials would not need to be conducted at an extensive number of locations. If the residue levels were very low or non-detectable and were within existing tolerances, the use should be approved. If residues were higher than existing tolerances, a more extensive residue program would then be required. Monsanto would meet with EPA to develop the residue program before initiating any studies.

Air Sampling:

The EPA would prefer to have actual crop residue data, rather than artificial air sampling tests.

Monsanto appreciates having the opportunity to meet with you to discuss these issues. If you have any additions or corrections to this memorandum, please contact Russ Schneider or me.

Sincerely,



Sheila A. Schuette, Ph.D.
Registration Manager
(314) 694-7248

cc: R. S. Quick / EPA
R.P. Schneider
L.L. Gingerich

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182
APR - 6 1994

Dr. Sheila A. Schuette
Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, DC 20005

Dear Dr. Schuette:

Subject: Glyphosate/Removal of 30-Day Rotational Crop Restriction
EPA Registration No. 524-445
Your Letter Dated August 16, 1993

This acknowledges receipt of your letter dated August 16, 1993 requesting removal of the 30-day rotational crop restriction from glyphosate labels. This request has been routed to the proper discipline for scientific review and evaluation. Further action will await completion of scientific review and evaluation.

Sincerely,

u/cw
Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (H7505C)

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

*Revised
3/14/94*

August 16, 1993

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Glyphosate / Removal of 30-Day Rotational Crop Restriction**

Dear Sir:

Monsanto would like to remove the 30-day rotational crop restriction that is currently required on our glyphosate product labels. The statement reads "Do not plant subsequent crops other than those on the label for 30 days following application." We believe that this statement should not be required and have prepared the following summary for your consideration.

Background

On March 31, 1987, the Agency issued PR Notice 87-3 (copy attached), which listed several pesticides for the which the rotational crop restriction statement could be deleted. Glyphosate was among this group. The criteria for inclusion in this group were (1) the rotational crop restriction was imposed solely as an interim measure until rotational crop data were developed, (2) the 165-1 confined rotational crop study had been required of the registrant, and (3) the registrant had agreed to conduct the study.

Monsanto submitted the required confined rotational crop study in June, 1990 (MRID 41543201-2). An addendum to the report was submitted in June, 1992 (MRID 42372504), and this study was accepted by the Agency on October 22, 1992.

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On December 4, 1990, Monsanto submitted a Roundup® herbicide label amendment requesting a deletion of the rotational crop restriction. This request was rejected by EFGWB in February, 1992 (copy attached) because "total residues in the 30 day after treatment subplot ranged from 0.188 ppm to 0.037 ppm."

Rationale

Monsanto requests that the Agency reconsider the removal of the rotational crop restriction for the following reasons:

1. Although the total radioactive residue in the 30 day after treatment subplot ranged from 0.188 to 0.037 ppm, the levels of the actual residues of concern were much lower. The combined residues of parent glyphosate and its metabolite AMPA ranged from 0.052 ppm to < 0.001 ppm. The difference in these values is due to re-incorporation of ¹⁴C into natural plant constituents such as glucose and fructose. The ¹⁴C is released as ¹⁴CO₂ during the degradation of glyphosate by soil microorganisms (MRID 41742901) and taken up by the plants.
2. Tolerances for glyphosate have been established for all of the crop groups except the herb and spices group at a minimum of 0.1 ppm. Therefore, except for crops in the herb and spices group, any residues of glyphosate and AMPA in any rotational crop that is planted following herbicide application will already be covered by an existing tolerance.
3. As mentioned above, tolerances for glyphosate are already established for the all of the major crop groupings and a number of crops are currently listed on our labels without a rotational crop restriction. Therefore, the only crops that would be affected by the requested action would be minor crops that are not included in any crop group (e.g., canola), and thus the number of treated acres would be relatively small. Furthermore, this action would save minor crop groups such as IR-4 from using their limited resources in obtaining approvals for pre-plant uses of glyphosate on these minor crops.

We believe that the rotational crop and metabolism data that have been submitted demonstrate that negligible, if any, residues would result from removing the 30 day rotational crop restriction from the glyphosate product labels. In addition, the residues would be adequately covered by existing tolerances. We therefore request your approval to delete this statement from the glyphosate product labels.

If you have any questions regarding this request, please contact Russ Schneider or me.

Sincerely,

Sheila A. Schuette

Sheila A. Schuette, Ph.D.
Registration Manager
(314) 694-7248

393

cc: R.P. Schneider
L.L. Gingerich
J.A. Mills

APR - 6 1994

Dr. Sheila A. Schuette
Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, DC 20005

Dear Dr. Schuette:

Subject: Memorandum of Understanding
Glyphosate Tolerance Expression Meeting
You Letter Dated February 23, 1994

This acknowledges receipt of your letter dated February 23, 1994 transmitting a Memorandum of Understanding for the meeting held February 10, 1994. This memorandum has been routed to the proper disciplines for comment. Further action will await completion of scientific review and evaluation.

Sincerely,

Robert J. Taylor
Product Manager 25
Fungicide-Herbicide Branch
Registration Division (H7505C)

UKW

395

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

Revised 3/4/94

February 23, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Glyphosate Tolerance Expression Meeting
Memorandum of Understanding**

Dear Sir:

On February 10, Monsanto met with the EPA to discuss the Agency's proposal to remove the metabolite aminomethylphosphonic acid (AMPA) from the glyphosate tolerance expression. Attending for EPA were Wesley Allen, William Dykstra, Rick Loranger, Michael Metzger, Randy Perfetti, Mary Peters, and Robert Quick. Attending for Monsanto were William Goure, Charles Hastings, Russ Schneider and me.

Monsanto requested the meeting to ensure that the Agency was aware that we are developing crops that are tolerant to glyphosate and that metabolism and residue studies on these crops demonstrate that AMPA will be a greater component of the total residue. In fact, in some crops, AMPA will be the major residue. Monsanto presented a summary of the metabolism and residue data we have developed for glyphosate-tolerant soybeans, which is the first crop we plan to commercialize in the US. Monsanto also presented an overview of the toxicological studies that have been conducted on AMPA. Copies of the overheads used in the presentation are attached for your files. Monsanto will submit the full studies in the next few months to support our request to label Roundup® herbicide for use over the top of glyphosate-tolerant soybeans.

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During the presentation, there were several questions for clarification and general interest about this new technology. During the discussion, these specific points were addressed:

- The Agency confirmed that if AMPA were removed from the glyphosate tolerance expression, then AMPA residues would not be included in the tolerance value. For example, if there is an existing glyphosate tolerance for a crop at 0.1 ppm and a new use in that crop were to result in glyphosate residue levels below 0.1 ppm and AMPA residues above 0.1 ppm, then a new tolerance would *not* be required. The Agency confirmed that such a commodity would not contain illegal residues and therefore could not be seized by FDA.
- Monsanto plans to request a feeding / grazing restriction on soybean forage. The Agency noted that there would be a notice for public comment on these types of restrictions later this year, but that Monsanto could request the restriction in our submission. It was determined that placing the restriction on the seed bag rather than the herbicide label would likely not be enforceable.
- Monsanto will continue to analyze residue samples for both glyphosate and AMPA residues since the same analytical method is used for both. The data on AMPA would then be available if it were needed for risk assessment.
- Dr. Schneider noted that glyphosate-tolerant soybeans will grown be at a demonstration plot near Washington, D.C. this summer and invited anyone who was interested in this new technology to visit the site; Monsanto will arrange the tours.

In summary, the Agency concluded that the new information we presented on glyphosate-tolerant crops would not change their recommendation to remove AMPA from the tolerance expression, as long as there were no unexpected results in the final reports. Monsanto agrees with the Agency's decision to remove AMPA from the glyphosate tolerance expression and requests that this decision be formalized by granting an exemption from tolerance for AMPA.

If you have any questions, please contact Russ Schneider or me.

Sincerely,



Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

cc: R.P. Schneider

Notified California

Monsanto

Monsanto Company
Suite 1100
700 14th Street, N.W.
Washington, D.C. 20005

January 18, 1994

Office of Pesticide Programs - H7504C
Document Processing Desk
U.S. Environmental Protection Agency
Room 226A, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, Virginia 22202

Attention: Mr. Robert J. Taylor
Product Manager (25)

Subject: **Roundup® Herbicide (EPA Reg. No. 524-445)**
**Notification: Supplemental Label for Preharvest Applications
to Wheat in California**

Dear Sir:

Monsanto is notifying the Agency of a supplemental label which allows the use of Roundup herbicide preharvest to wheat. *This label will be distributed in California only.* This label is identical to the label that was approved by the Agency on June 17, 1993 and distributed to the rest of the U.S. except that the recommendations for control of specific weeds have been removed. This change has been made because the recommended tank mixture with 2,4-D is not allowed in the state of California.

Three copies of the label are enclosed for your files.


If you have any questions regarding this notification, please contact Dr. Russ Schneider or me.

Sincerely,

Sheila A. Schuette

Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs
(314) 694-7248

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| | | | |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| (A)  | United States Environmental Protection Agency
Office of Pesticide Programs (H7505C)
Washington, DC 20460 | <input type="checkbox"/> Registration
<input type="checkbox"/> Amendment
<input checked="" type="checkbox"/> Other | OPP Identifier Number

207761 |
| | Application for Pesticide: | | |
| | | | |

Section I

| | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| 1. Company/Product Number
524-445 | 2. EPA Product Manager
Robert J. Taylor | 3. Proposed Classification
<input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted |
| 4. Company/Product (Name)
Roundup® Herbicide | PM#
25 | |
| 5. Name and Address of Applicant (Include ZIP Code)
Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, D.C. 20005
<input type="checkbox"/> Check if this is a new address | 6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to:

EPA Reg. No. _____
Product Name _____ | |

Section II

| | |
|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| <input type="checkbox"/> Amendment - Explain below | <input type="checkbox"/> Final printed labels in response to Agency letter dated _____ |
| <input type="checkbox"/> Resubmission in response to Agency letter dated _____ | <input type="checkbox"/> "Me Too" Application. |
| <input checked="" type="checkbox"/> Notification - Explain below. | <input type="checkbox"/> Other - explain below. |

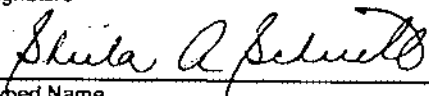
Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Notification: Supplemental label for preharvest applications to wheat in California.

Section III

| | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| 1. Material This Product Will Be Packaged In: | | | | 2. Type of Container | |
| Child-Resistant Packaging
<input type="checkbox"/> Yes
<input checked="" type="checkbox"/> No | Unit Packaging
<input type="checkbox"/> Yes
<input checked="" type="checkbox"/> No | Water Soluble Packaging
<input type="checkbox"/> Yes
<input checked="" type="checkbox"/> No | | <input type="checkbox"/> Metal | <input checked="" type="checkbox"/> Plastic |
| | | | | <input type="checkbox"/> Glass | <input type="checkbox"/> Paper |
| | | | | <input type="checkbox"/> Other (Specify) _____ | |
| * Certification must be submitted. | | If "Yes," Unit Package wgt. _____ No. per container _____ | | If "Yes," Package wgt. _____ No. per container _____ | |
| 3. Location of Net Contents Information
<input type="checkbox"/> Label <input checked="" type="checkbox"/> Container | | 4. Size(s) of Retail Container
various | | 5. Location of Label Directions
<input checked="" type="checkbox"/> On Label <input checked="" type="checkbox"/> On Labeling accompanying product | |
| 6. Manner In Which Label Is Affixed To Product
<input type="checkbox"/> Lithograph
<input type="checkbox"/> Paper glued
<input type="checkbox"/> Stenciled | | <input checked="" type="checkbox"/> Other (vinyl glued) | | | |

Section IV

| | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------------------|
| 1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.) | | |
| Name
Dr. Russell P. Schneider | Title
Agricultural Regulation Director | Telephone No. (Include Area Code)
(202) 783-2460 |
| 2. Signature
 | | 3. Title
Manager, Regulatory Affairs |
| 4. Typed Name
Sheila A. Schuette, Ph.D. | | 5. Date
Jan. 18, 1994 |
| I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law. | | 6. Date Application Received (Stamped)
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PAPERWORK REDUCTION ACT NOTICE and INSTRUCTIONS

PAPERWORK REDUCTION ACT NOTICE: Public reporting burden for this collection of information is estimated to average 0.85 hour per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PH-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

INSTRUCTIONS: This form is to be used for all applications for new registration, end use reregistration, amendment, resubmission, to applications for notifications, final printed labeling, reregistration, etc. In order to process an application for a new registration submitted on this form, the following material must accompany the application:

1. Certification with Respect to Citation of Data (EPA Form 8570-29). (If not exempted by 40 CFR 152.81 (b) (4));
2. Confidential Statement of Formula (EPA Form 8570-4);
3. Formulator's Exemption Statement (EPA Form 8570-27);
4. Five copies of draft labeling;
5. Three copies of any data submitted;
6. Authorization letter where applicable;
7. Matrices where applicable.

Submission of Labeling - Labeling should first be submitted in the form of draft labels with all applications for new registration. Such draft labels may be in the form of typed label text on 8.5 x 11 inch paper or a mockup of the proposed label. If prepared as a mockup, it should be constructed in such a way as to facilitate storage in an 8.5 x 11 inch file. Mockup labels significantly smaller than 8.5 x 11 inches should be mounted on 8.5 x 11 inch paper for submission. **Submission of Data** - Data submitted in support of this application must be submitted in accordance with PR Notice 86-5.

SPECIFIC INSTRUCTIONS: Please read the instructions listed below before completing this application. First determine the type of registration action, listed in Block A, for which you are submitting this application. For applications submitted in connection with New Registration actions, Sections I, III, and IV must be completed by the applicant. For applications submitted in connection with amended registration actions, resubmissions, notifications, reregistrations, etc., Sections I, II, and IV must be completed by the applicant.

Block A - Check the appropriate action for which you are submitting this form.

SECTION I - This section must be completed, as applicable, for all registration actions.

1. **Company/Product Number** - Insert your Company Number, if one has been assigned by EPA. This number may have been assigned to you as a basic registrant, a distributor, or as an establishment. If your product is registered, insert the Product Number.
2. **EPA Product Manager** - If known, fill in the name and PM number of the EPA Product Manager.
3. **Proposed Classification** - Specify the proposed classification of this product.
4. **Product Name** - Enter the complete product name of this pesticide as it will appear on the label. The name must be specific to this product only. Duplication of names is not permitted among products of the same company. Do not include any brand name or company line designations.
5. **Name and Address of Applicant** - The name of the firm or person and address shown in your application is the person or firm to whom the registration will be issued. If you are acting in behalf of another party, you must submit authorization from that party to act for them in registration matters. An applicant not residing in the United States must have an authorized agent residing in the United States to act for them in all registration matters. The name and complete mailing address of such an agent must accompany this application.
6. **Expedited Review** - FIFRA section 3 (c) 3 (B) provides for expedited review of applications for registration, or amendments to existing registrations, that are similar or identical to other pesticide products that are currently registered with the EPA. In order for your application to be eligible for expedited review, you must provide us with the EPA Registration Number and product name of the product you believe is similar to or identical to your product. The product must be similar or identical in both formulation and labeled uses.

SECTION II - This section must be completed for all applications submitted to amend the registration only of a currently registered product (Amendment), for a resubmission in response to an Agency letter, for notifications to the Agency, for the submission of final printed labeling, for reregistration and for any other action that pertains to a specific EPA-registered product. This section is not to be used for a new application for registration.

1. **Subject of submission** - Check the applicable block and provide the Agency letter date if appropriate. Provide a brief explanation of the purpose(s) for the submission, such as "the addition of a site, pest or crop (specify)"; "amend the Confidential Statement of Formula by..."; "reregistration submission"; general label revision of use directions." Attach a separate page if additional space is needed.

SECTION III (Packaging and Container Information) - This section must be completed for all applications submitted in connection with new registration or applicable amendments.

1. **Type of Packaging** - Check the appropriate block if your product will be packaged in the indicated packaging types. Indicate the size of the individual packets and number per retail container.
2. **Type of Retail Container** - Indicate type of container in which product will be marketed.
3. **Location of Net Contents** - Specify the net contents of all retail containers for your product.
4. **Size(s) of Retail Container** - Specify the net contents of all retail containers for your product.
5. **Location of Use Directions** - Indicate the location of the use directions for your product.
6. **Manner in which label is affixed to product** - Indicate the method product label is attached to retail container.

SECTION IV (Contact Point) - This section must be completed for all applications for Registration actions, i.e., new products registration, resubmission, "we-too," reregistration, etc.

- 1-5. Self-explanatory.
6. EPA Use Only.



United States Environmental Protection Agency
Washington, DC 20460

Certification with Respect to Citation of Data

Form Approved
OMB No. 2070-0060
Approval Expires 11-30-93

Applicants Name and Address

Monsanto Company
700 14th Street, N.W., Suite 1100
Washington, D.C. 20005

EPA File Symbol/Registration Number

524-445

Product Name

Roundup® Herbicide


Date of Application

January 18, 1994

NOTE: If your product is a 100% repackaging of another EPA-registered product that you purchase, and is labeled for the same uses, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

1. This application is supported by all data submitted or cited in the application. In addition, if cite-all options are indicated, this application is supported by all data in the Agency's files that concern the properties or effects of this product that is identical or substantially similar, and that is one of the types of data that would be required to be submitted if this application sought the initial registration of a product of identical or similar composition and intended uses under the data requirements in effect on the date of approval of this application. (Check the appropriate boxes, in items 2 and 3 below, that pertain to your application.)
2. I certify that, for each study cited in support of this application for registration that is an exclusive use study,
 - ☒ I am the original submitter*; or
 - ☐ I have obtained the written permission of the original data submitter to cite that study*
3. I certify that, for each study cited in support of this application for registration that is not an exclusive use study:
 - a. ☒ I am the original data submitter*; or
 - ☐ I have obtained the written permission of the original data submitter to cite that study*; or
 - b. ☐ I have notified in writing the companies that have submitted data I have cited to support this application and have offered to: (a) Pay compensation for those data in accordance with section 3(c)(1)(D) and 3(c)(2)(D) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA); and (b) Commence negotiations to determine which data are subject to the compensation requirement of FIFRA and the amount and terms of compensation due, if any. The companies I have notified are: (Check one)
 - ☐ All companies listed on the Pesticide Data Submitters List for all active ingredients contained in my product (cite-all method or cite-all option under Selective Method*). (Also, sign the General Offer Statement below.)
 - ☐ Those companies that have submitted the studies which I have cited (Selective method*).

* A Data Matrix identifying these studies is attached. (Note: a Data Matrix is not required under the cite-all method.)

| | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------|
| Signature
 | Name and Title
Sheila A. Schuette, Ph.D.
Manager, Regulatory Affairs | Date
Jan 18, 1994 |
| General Offer to Pay: I hereby offer and agree to pay compensation to other persons, with regard to the approval of this application, to the extent required. | | |
| Signature | Name and Title | Date |

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.

ROUNDUP®

Herbicide by Monsanto

EPA Reg. No. 524-445

FOR PREHARVEST APPLICATIONS IN WHEAT
IN CALIFORNIA ONLY

Keep out of reach of children.

WARNING! AVISO!

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

®Roundup is a registered trademark of Monsanto Company.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

This label must be in the possession of the user at the time of application.

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS" sections of the label booklet for Roundup herbicide for essential product performance information.

RECOMMENDATIONS

This product controls annual and perennial weeds listed on this label prior to the harvest of wheat. Make applications after the hard-dough stage of grain (30% or less grain moisture) and at least 7 days prior to harvest.

This product may be applied using either aerial or ground spray equipment. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for instructions for ground and aerial applications.

40

DO NOT APPLY MORE THAN 1 QUART PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS.

For specific rates of application and instructions for control of other annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

NOTE: It is not recommended that wheat grown for seed be treated because a reduction in germination or vigor may occur.

Read the "Limit of Warranty and Liability" in the label booklet for Roundup herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

©Monsanto Company 1994

MAP

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

40

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.

ROUNDUP®
Herbicide by Monsanto

EPA Reg. No. 524-445

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40'

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©Monsanto Company 1994

MAP

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR ROUNDUP® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING.

"Label" as used in this supplemental labeling refers to the label booklet for Roundup and this supplement.

ROUNDUP®
Herbicide by Monsanto

EPA Reg. No. 524-445

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... 406

DO NOT APPLY MORE THAN 1 QUART PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS.

For specific rates of application and instructions for control of other annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

NOTE: It is not recommended that wheat grown for seed be treated because a reduction in germination or vigor may occur.

Read the "Limit of Warranty and Liability" in the label booklet for Roundup herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

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MAP

MONSANTO COMPANY
AGRICULTURAL PRODUCTS
ST. LOUIS, MISSOURI 63167

PM 25



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JAN 14 1994

Dr. Russell P. Schneider
MONSANTO CO.
Agent for: MONSANTO AGRICULTURAL CO.
700 14th St., N.W. - Suite 1100
Washington, D.C. 20005

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Subject: Label Amendment Submission of 07/22/93 in Response to PR Notice 93-7
EPA Reg. No. 524-445
ROUNDUP HERBICIDE.

Dear Registrant:

The labeling cited above and submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is **accepted**. A copy of your proposed labeling stamped "ACCEPTED WITH COMMENTS" is enclosed.

WHAT THIS ACCEPTANCE MEANS:

Based on your certification, the Agency has accepted the labeling changes that are necessary to comply with the Worker Protection Standard (WPS) labeling requirements of 40 CFR part 156, subpart K, described in PR Notices 93-7 and 93-11. Any other labeling changes submitted in connection with this amendment application but not directly related to compliance with the WPS have not been reviewed or accepted by the Agency. If you wish to make such changes, you must submit a separate amendment application proposing them. If your product is currently suspended, the acceptance of this labeling amendment does not affect the suspension in any way.

WHAT YOU NEED TO DO NEXT:

Send to EPA one (1) copy of the final printed labeling:

- BEFORE selling or distributing any product bearing the final printed labeling
- AND
- WITHIN one year from date of this acceptance.



Recycled/Recyclable
Printed with Soy/Canola Ink on paper that
contains at least 50% recycled fiber

40

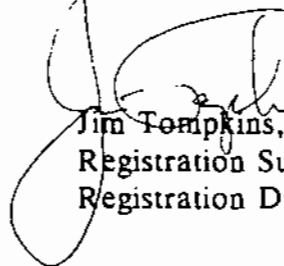
Submit the final printed labeling via the U.S. Postal Service to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs (7505C)
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460-0001

Hand or courier deliveries of final printed labeling may be made to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs
Room 266A, Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202

Sincerely,



Jim Tompkins, Deputy Chief
Registration Support Branch
Registration Division (7505W)

Attachment

7-7-93

Roundup (R)
Herbicide by Monsanto

Complete Directions for Use

EPA Reg. No. 524-445

AVOID CONTACT WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

(R) Roundup is a registered trademark of Monsanto Company.

~~1992-X~~ A-000.01

Read each of these sections of this label for essential product performance information.

USE THESE CONVENIENT SECTION MARKERS.

GENERAL INFORMATION

MIXING, ADDITIVES AND APPLICATION
INSTRUCTIONS

WEEDS CONTROLLED

NONCROP USES

CROPPING SYSTEMS

MINIMUM TILLAGE

TREE AND VINE CROPS

Read the entire label before using this product.

Use only according to label instructions.

Read "LIMIT OF WARRANTY AND LIABILITY" before buying or using. If terms are not acceptable, return at once unopened.

REFORMULATION IS PROHIBITED. SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

LIMIT OF WARRANTY AND LIABILITY

ACCEPTED
with COMMENTS
In EPA Letter Dated

JAN 14 1994

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.

524-445

410

(Not applicable to consumer applications applied by the homeowner for noncommercial purposes as permitted by the supplemental labeling for 1-quart containers.)

This Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

Buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement.

(INDEX PAGES)

PRECAUTIONARY STATEMENTS

Hazards to
Humans and Domestic Animals

Keep out of reach of children.

WARNING! AVISO!

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY.
HARMFUL IF SWALLOWED OR INHALED.

Do not get in eyes or on clothing.

~~Wear goggles or face shield.~~

Avoid breathing vapor or spray mist.

~~Wash thoroughly with soap and water after handling.~~

~~Remove contaminated clothing and wash before reuse.~~

Personal Protective Equipment:

Applicators and other handlers must wear long-sleeved shirt and long pants, shoes plus socks, and protective eyewear. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations:

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

FIRST AID: IF IN EYES, immediately hold eyelids open and flush with plenty of water for at least 15 minutes. Get medical attention.

IF INHALED, Remove individual to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

IF SWALLOWED, This product will cause gastrointestinal tract irritation. Immediately dilute by swallowing water or milk. Get medical attention.

In case of an emergency involving this product, Call Collect, day or night, (314) 694-4000.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions

of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

ACTIVE INGREDIENT:

*Glyphosate, N-(phosphonomethyl)
glycine, in the form of its
isopropylamine salt.....

41.0%

INERT INGREDIENTS:.....59.0%

100.0%

*Contains 480 grams per litre or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per litre or 3 pounds per U.S. gallon of the acid, glyphosate.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is: coveralls, waterproof gloves, shoes plus socks, and protective eyewear.

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Keep people and pets off treated areas until spray solution has dried.

For more product information, call toll-free 1-800-323-1421.

Storage and Disposal

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

See container label for STORAGE AND DISPOSAL instructions.

GENERAL INFORMATION

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT EXCEPT UNDER CONDITIONS AS SPECIFIED WITHIN THIS LABEL.

This product, a water soluble liquid, mixes readily with water to be applied as a foliar spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field-type sprayers after dilution and thorough mixing with water in accordance with label instructions.

This product moves through the plant from the point of foliage

contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds may not occur for 7 days or more. Extremely cool or cloudy weather following treatment may slow activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above-ground growth and deterioration of underground plant parts.

Unless otherwise specified on this label, delay application until vegetation has emerged and reached the stages described for control of such vegetation under the "WEEDS CONTROLLED" section of this label. Unemerged plants arising from unattached underground rhizomes or root stocks of perennials will not be affected by the herbicide and will continue to grow. For this reason, best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per acre within the recommended range when (1) weed growth is heavy or dense, or (2) weeds are growing in an undisturbed (noncultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed, or cut, and have not been allowed to regrow to the recommended stage for treatment.

Rainfall or irrigation occurring within 6 hours after application may reduce effectiveness. Heavy rainfall or irrigation within 2 hours after application may wash the chemical off the foliage and a repeat treatment may be required.

This product does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly recommended in this labeling. Mixing this product with herbicides or other materials not recommended on this label may result in reduced performance.

For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

~~Keep people and pets off treated areas until spray solution has dried.~~

DOMESTIC ANIMALS: This product is considered to be relatively nontoxic to dogs and other domestic animals; however, ingestion of this product or large amounts of freshly sprayed vegetation may result in temporary gastrointestinal irritation (vomiting, diarrhea, colic, etc.). If such symptoms are observed, provide the animal with plenty of fluids to prevent dehydration. Call a veterinarian if symptoms persist for more than 24 hours.

ATTENTION

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of injury occurring from the use of this product is greatest when winds are gusty or in excess of 5 miles per hour or when other conditions, including lesser wind velocities, will allow spray drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. **AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.**

NOTE: Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES. DO NOT APPLY WHEN WIND OR OTHER CONDITIONS FAVOR DRIFT. HAND-GUN APPLICATIONS SHOULD BE PROPERLY DIRECTED TO AVOID SPRAYING DESIRABLE PLANTS. **NOTE:** REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

MIXING

This product mixes readily with water. Mix spray solutions of this product as follows: Fill the mixing or spray tank with the required amount of water. Add the recommended amount of this product (see the "DIRECTIONS FOR USE" and "WEEDS CONTROLLED" sections of this label) near the end of the filling process and mix well. Remove hose from tank immediately after filling to avoid siphoning back into the carrier source. During mixing and application,

foaming of the spray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, terminate by-pass and return lines at the bottom of the tank and, if needed, use an approved anti-foam or defoaming agent.

TANK MIXTURES

Always predetermine the compatibility of labeled tank mixtures of this product with water carrier by mixing small proportional quantities in advance.

Mix labeled tank mixtures of this product with water as follows:

1. Place a 20 to 35 mesh screen or wetting basket over filling port.
2. Through the screen, fill the spray tank one-half full with water and start agitation.
3. If a wettable powder is used, make a slurry with the water carrier, and add it SLOWLY through the screen into the tank. Continue agitation.
4. If a flowable formulation is used, premix one part flowable with one part water. Add diluted mixture SLOWLY through the screen into the tank. Continue agitation.
5. If an emulsifiable concentrate formulation is used, premix one part emulsifiable concentrate with two parts water. Add diluted mixture slowly through the screen into the tank. Continue agitation.
6. Continue filling the sprayer tank with water and add the required amount of this product near the end of the filling process.
7. Where nonionic surfactant is recommended, add this to the spray tank before completing the filling process.
8. Add individual formulations to the spray tank as follows: wettable powder, flowable, emulsifiable concentrate, drift control additive, water soluble liquid followed by surfactant.

Maintain good agitation at all times until the contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed.

Keep by-pass line on or near bottom of tank to minimize foaming. Screen size in nozzle or line strainers should be no finer than 50 mesh. Carefully select proper nozzle to avoid spraying a fine mist. For best results with conventional ground application equipment,

use flat fan nozzles.

Clean sprayer and parts immediately after using this product by thoroughly flushing with water.

ADDITIVES

SURFACTANTS

Nonionic surfactants which are labeled for use with herbicides may be used. Do not reduce rates of this product when adding surfactant. When adding additional surfactant, use 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration (4 quarts per 100 gallons of spray solution) for those surfactants containing less than 70 percent active ingredient. Read and carefully observe surfactant cautionary statements and other information appearing on the surfactant label.

AMMONIUM SULFATE

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product, and this product plus 2,4-D, Banvel™ or residual herbicide tank mixtures on annual and perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Low-quality ammonium sulfate may contain material that will not readily dissolve, which could result in nozzle tip plugging. To determine quality, perform a jar test by adding 1/3 cup of ammonium sulfate to 1 gallon of water and agitate for 1 minute. If undissolved sediment is observed, predissolve the ammonium sulfate in water and filter prior to addition to the spray tank. If ammonium sulfate is added directly to the spray tank, add slowly with agitation. Adding too quickly may clog outlet line. Ensure that ammonium sulfate is completely dissolved in the spray tank before adding herbicides or surfactant. Thoroughly rinse the spray system with clean water after use to reduce corrosion.

NOTE: The use of ammonium sulfate as an additive does not preclude the need for additional surfactant. Do not use herbicide rates lower than recommended in this label.

COLORANTS OR DYES

Agriculturally-approved colorants or marking dyes may be added to this product. Colorants or dyes used in spray solutions of this

product may reduce performance, especially at lower rates or dilutions. Use colorants or dyes according to the manufacturer's recommendations.

APPLICATION EQUIPMENT AND TECHNIQUES

Do not apply this product through any type of irrigation system.

This product may be applied with the following application equipment:

Aerial -- Fixed Wing and Helicopter

Broadcast Spray

Controlled Droplet Applicator (CDA) -- Hand-held or boom-mounted applicators which produce a spray consisting of a narrow range of droplet sizes.

Hand-Held and High-Volume Spray Equipment -- Knapsack and backpack sprayers, pump-up pressure sprayers, handguns, handwands, mistblowers, lances and other hand-held and motorized spray equipment used to direct the spray onto weed foliage.

Selective equipment -- Recirculating sprayers, shielded sprayers and wiper applicators.

See the appropriate part of this section for specific instructions and rates of application.

■ AERIAL EQUIPMENT ■

Use the recommended rates of this herbicide in 3 to 15 gallons of water per acre unless otherwise specified on this label. See the "WEEDS CONTROLLED" section of this label for specific rates. Unless otherwise specified, do not exceed 1 quart per acre. Aerial applications of this product may be made in annual cropping conventional tillage systems, fallow and reduced tillage systems, preharvest, silvicultural sites and rights-of-way. Refer to the individual use area sections of this label for recommended volumes and application rates. FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

Avoid direct application to any body of water.

AVOID DRIFT--DO NOT APPLY DURING INVERSION CONDITIONS, WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITION WHICH FAVORS DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Ensure uniform application -- To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE. The maintenance of an organic coating (paint), which meets aerospace specification MIL-C-38413, may prevent corrosion.

This product plus OustTM, Banvel or 2,4-D tank mixtures may not be applied by air in California.

■ BROADCAST EQUIPMENT ■

For control of annual or perennial weeds listed on this label using broadcast equipment -- Use the recommended rates of this product in 3 to 40 gallons of water per acre as a broadcast spray unless otherwise specified on this label. See the 'WEEDS CONTROLLED' section of this label for specific rates. As density of weeds increases, spray volume should be increased within the recommended range to ensure complete coverage. Carefully select proper nozzle to avoid spraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

■ CONTROLLED DROPLET APPLICATION (CDA) ■

The rate of this product applied per acre by vehicle-mounted CDA equipment must not be less than the amount recommended in this

label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 3 to 15 gallons of water per acre.

For the control of labeled annual weeds with hand-held CDA units, apply a 20 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 1.5 MPH (1 quart per acre). For the control of labeled perennial weeds, apply a 20 to 40 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 0.75 MPH (2 to 4 quarts per acre).

Controlled droplet application equipment produces a spray pattern which is not easily visible. Extreme care must be exercised to avoid spray or drift contacting the foliage or any other green tissue of desirable vegetation, as damage or destruction may result.

■ **HAND-HELD and HIGH-VOLUME** ■
EQUIPMENT

Use coarse sprays only.

Mix this product in clean water and apply to foliage of vegetation to be controlled. For applications made on a spray-to-wet basis, spray coverage should be uniform and complete. Do not spray to the point of runoff.

For control of annual weeds listed on this label, apply a 0.5 percent solution of this product plus nonionic surfactant to weeds less than 6 inches in height or runner length. Apply prior to seedhead formation in grass or bud formation in broadleaf weeds. Allow three or more days before tillage or mowing.

For annual weeds over 6 inches tall, or when not using additional surfactant, or unless otherwise specified, use a 1 percent solution. For best results, use a 2 percent solution on harder-to-control perennials, such as bermudagrass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

When using application methods which result in less than complete coverage, use a 5 percent solution for annual and perennial weeds and a 5 to 10 percent solution for woody brush and trees.

Prepare the desired volume of spray solution by mixing the amount of this product in water as shown in the following table:

Spray Solution

Amount of Roundup

| Desired
Volume | 1/2% | 1% | 1 1/2% | 2% | 5% | 10% |
|-------------------|--------|----------|-----------|----------|----------|--------|
| 1 Gal | 2/3 oz | 1-1/3 oz | 2 oz | 2-2/3 oz | 6-1/2 oz | 13 oz |
| 25 Gal | 1 pt | 1 qt | 1 1/2 qt | 2 qt | 5 qt | 10 qt |
| 100 Gal | 2 qt | 1 gal | 1 1/2 gal | 2 gal | 5 gal | 10 gal |

2 tablespoons = 1 fluid ounce

For use in knapsack sprayers, it is suggested that the recommended amount of this product be mixed with water in a larger container. Fill sprayer with the mixed solution.

SELECTIVE EQUIPMENT

This product may be applied through a recirculating spray system, a shielded applicator, or a wiper applicator after dilution and thorough mixing with water to listed weeds growing in any noncrop site specified on this label and only when specifically recommended in cropping systems.

A recirculating spray system directs the spray solution onto weeds growing above desirable vegetation, while spray solution not intercepted by weeds is collected and returned to the spray tank for reuse.

A shielded applicator directs the herbicide solution onto weeds, while shielding desirable vegetation from the herbicide.

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution.

AVOID CONTACT WITH DESIRABLE VEGETATION.

Contact of the herbicide solution with the desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that the lowest spray stream or wiper contact point is at least 2 inches above the desirable vegetation. Droplets, mist, foam, or splatter of the herbicide solution settling on desirable vegetation may result in discoloration, stunting, or destruction.

Applications made above the crops should be made when the weeds are a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the

herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatment may be necessary.

SHIELDED APPLICATORS

When applied as directed under conditions described for shielded applicators, this product will control those weeds listed in the "WEEDS CONTROLLED" section of this label.

Use the following equation to convert from a broadcast rate per acre to a band rate per acre.

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Herbicide Broadcast RATE per acre} = \text{Herbicide Band RATE per acre}$$

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast VOLUME of solution per acre} = \text{Band VOLUME of solution per acre}$$

Use nozzles that provide uniform coverage within the treated area. Keep shields on shielded sprayers adjusted to protect desirable vegetation. EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT WITH DESIRABLE VEGETATION.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

WIPER APPLICATORS

Wiper applicators are devices that physically wipe appropriate amounts of this product directly onto the weed.

Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Operate this equipment at ground speeds no greater than 5 mph. Performance may be improved by reducing speed in areas of heavy weed infestations to ensure adequate wiper saturation. Better results may be obtained if 2 applications are made in opposite directions.

Avoid leakage or dripping onto desirable vegetation. Adjust height of applicator to ensure adequate contact with weeds. Keep wiping

surfaces clean. Be aware that, on sloping ground, the herbicide solution may migrate, causing dripping on the lower end and drying of the wicks on the upper end of a wiper applicator.

Do not use wiper equipment when weeds are wet.

Mix only the amount of solution to be used during a 1-day period, as reduced activity may result from use of leftover solutions. Clean wiper parts immediately after using this product by thoroughly flushing with water.

Do not add surfactant to the herbicide solution.

For Rope or Sponge Wick Applicators -- Mix 1 gallon of this product in 2 gallons of water to prepare a 33 percent solution. Apply this solution to weeds listed in this "WIPER APPLICATORS" section.

For Porous-Plastic Applicators -- Solutions ranging from 33 to 100 percent of this product in water may be used in porous-plastic wiper applicators.

When applied as recommended under the conditions described for "WIPER APPLICATORS", this product CONTROLS the following weeds:

ANNUAL GRASSES

Corn

Zea mays

Panicum, Texas

Panicum texanum

Rye, common

Secale cereale

Shattercane

Sorghum bicolor

ANNUAL BROADLEAVES

Sicklepod

Cassia obtusifolia

Spanishneedles

Bidens bipinnata

Starbur, bristly

Acanthospermum hispidum

When applied as recommended under the conditions described for
'WIPER APPLICATORS', this product SUPPRESSES the following weeds:

ANNUAL BROADLEAVES

Beggarweed, Florida

Desmodium tortuosum

Dogfennel

Eupatorium capilliflorum

Pigweed, redroot

Amaranthus retroflexus

Ragweed, common

Ambrosia artemisiifolia

Ragweed, giant

Ambrosia trifida

Sunflower

Helianthus annuus

Thistle, musk

Carduus nutans

Velvetleaf

Abutilon theophrasti

PERENNIAL GRASSES

Bermudagrass

Cynodon dactylon

Guineagrass

Panicum maximum

Johnsongrass

Sorghum halepense

Smutgrass

Sporobolus poiretii

Vaseygrass

Paspalum urvillei

PERENNIAL BROADLEAVES

Dogbane, hemp

Apocynum cannabinum

Milkweed

Asclepias syriaca

Nightshade, silverleaf
Solanum elaeagnifolium

Thistle, Canada
Cirsium arvense

WEEDS CONTROLLED

This herbicide controls many annual and perennial grasses and broadleaf weeds.

ANNUAL WEEDS

- Apply to actively growing grass and broadleaf weeds.
- Allow at least 3 days after treatment before tillage.
- For maximum agronomic benefit, apply when weeds are 6 inches or less in height.
- To prevent seed production, applications should be made prior to seedhead formation.
- This product does not provide residual control; therefore, delay application until maximum weed emergence. Repeat treatments may be necessary to control later germinating weeds.

LOW-VOLUME BROADCAST APPLICATION (LOW-RATE TECHNOLOGY)

When applied as directed under the conditions described, this product will control the weeds listed below when:

1. Water carrier volumes of 3 to 10 gallons per acre for ground applications and 3 to 5 gallons per acre for aerial applications are recommended. (See the "AERIAL APPLICATION" section of this label for approved sites.)
2. A nonionic surfactant is added at 0.5 to 1 percent by total spray volume. Use 0.5 percent surfactant concentration when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration for those surfactants containing less than 70 percent active ingredient.

NOTE

- The addition of 2 percent dry ammonium sulfate by weight or 17 pounds per 100 gallons of water may increase the performance of this product on annual weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.
- Do not tank-mix with soil residual herbicides when using these rates unless otherwise specified.
- For weeds that have been mowed, grazed or cut, allow regrowth to occur prior to treatment.
- Refer to the "TANK MIXTURES" portion of this section for control of additional broadleaf weeds.

| WEED SPECIES | MAXIMUM
HEIGHT/LENGTH | RATE
PER
ACRE*
(Fluid Ounces) |
|--------------------------------------------------------|----------------------------|--------------------------------------------------------|
| Foxtail
<i>Setaria spp.</i> | 12" | 8 oz. |
| Barnyardgrass
<i>Echinochloa crus-galli</i> | 6"
(0 to 4"
(4 to 6" | 12 oz.
16 oz. ¹⁾
24 oz. ¹⁾ |
| Bluegrass, annual
<i>Poa annua</i> | | |
| Brome, downy**
<i>Bromus tectorum</i> | | |
| Mustard, blue
<i>Chorispora tenella</i> | | |
| Mustard, tansy
<i>Descurainia pinnata</i> | | |
| Mustard, tumble
<i>Sisymbrium altissimum</i> | | |
| Mustard, wild
<i>Sinapis arvensis</i> | | |
| Spurry, umbrella
<i>Holosteum umbellatum</i> | | |

| | | |
|---------------------------------------------------------|-----|--------|
| Barley
<i>Hordeum vulgare</i> | 12" | |
| Rye
<i>Secale cereale</i> | | |
| Sandbur, field
<i>Cenchrus spp.</i> | | |
| Shattercane
<i>Sorghum bicolor</i> | | |
| Stinkgrass
<i>Eragrostis cilianensis</i> | | |
| <hr/> | | |
| Wheat
<i>Triticum aestivum</i> | 18" | |
| <hr/> | | |
| Morningglory
<i>Ipomoea spp.</i> | 2" | 16 oz. |
| Sicklepod
<i>Cassia obtusifolia</i> | | |
| <hr/> | | |
| Bluegrass, bulbous
<i>Poa bulbosa</i> | 6" | |
| Cheat
<i>Bromus secalinus</i> | | |
| Chickweed, common
<i>Stellaria media</i> | | |
| Chickweed, mouseear
<i>Cerastium vulgatum</i> | | |
| Corn
<i>Zea mays</i> | | |
| Goatgrass, jointed
<i>Aegilops cylindrica</i> | | |
| Groundsel, common
<i>Senecio vulgaris</i> | | |
| Henbit
<i>Lamium amplexicaule</i> | | |

Horseweed/Marestail
Conyza canadensis

Lambsquarters, common
Chenopodium album

Pennycress, field
Fanweed
Thlaspi arvense

Rocket, London
Sisymbrium irio

Ryegrass, Italian
Lolium multiflorum

Shepherdspurse
Capsella bursa-pastoris

Spurge, annual
Euphorbia spp.

Buttercup
Ranunculus spp.

12"

Cocklebur
Xanthium strumarium

Crabgrass
Digitaria spp.

Dwarf dandelion
Krigia cespitosa

False flax, small seed
Camelina microcarpa

Foxtail, Carolina
Alopecurus carolinianus

Johnson grass, seedling
Sorghum halepense

Oats, wild
Avena fatua

Panicum, fall
Panicum dichotomiflorum

Panicum, Texas
Panicum texanum

Pigweed, redroot
Amaranthus retroflexus

Pigweed, smooth
Amaranthus hybridus

Witchgrass
Panicum capillare

| | | |
|-----------------------------------------------|---------|-------|
| Sicklepod
<i>Cassia obtusifolia</i> | 3 to 4" | 24 oz |
|-----------------------------------------------|---------|-------|

| | |
|----------------------------------------------------------------|----|
| Signalgrass, broadleaf
<i>Brachiaria platyphylla</i> | 4" |
|----------------------------------------------------------------|----|

| | |
|--------------------------------------------------------|----------|
| Horseweed/Marestail
<i>Conyza canadensis</i> | 7 to 12" |
|--------------------------------------------------------|----------|

Lambsquarters, common
Chenopodium album

Spurge, annual
Euphorbia spp.

| | | |
|-----------------------------------------|----|--------|
| Rice, red
<i>Oryza sativa</i> | 4" | 32 oz. |
|-----------------------------------------|----|--------|

Tea weed
Sida spinosa

| | |
|----------------------------------------------|----|
| Sprangletop
<i>Leptochloa</i> spp. | 6" |
|----------------------------------------------|----|

| | |
|-----------------------------------------------------------|-----|
| Geranium, Carolina
<i>Geranium carolinianum</i> | 12" |
|-----------------------------------------------------------|-----|

Goosegrass
Eleusine indica

Primrose, cutleaf evening
Oenothera laciniata

Pusley, Florida
Richardia scabra

Sicklepod 5 to 12"
Cassia obtusifolia

Spanishneedles
Bidens bipinnata

Filaree
Erodium spp.

12"

48 oz.

Sprangletop
Leptochloa spp.

¹Use these rates to control barnyardgrass in Alabama, Arkansas, Mississippi, Missouri, Louisiana and Texas for preplant treatments.

- * For those rates less than 32 fluid ounces per acre, this product at rates up to 32 fluid ounces per acre may be used where heavy weed densities exist.
- ** For control in no-till systems, use 16 fluid ounces per acre.

■ **TANK MIXTURES** ■

■ **Roundup plus BANVEL** ■
plus NONIONIC SURFACTANT

■ **Roundup plus 2,4-D** ■
plus NONIONIC SURFACTANT

DO NOT APPLY BANVEL OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA.

These tank mixtures are recommended for use in fallow and reduced tillage areas only. Follow use directions as given in the "LOW-VOLUME BROADCAST APPLICATION" section.

This product plus Banvel or 2,4-D will control the annual grasses and broadleaf weeds listed for this product alone at the indicated heights (except 8 fluid ounces per acre applications), plus the following broadleaf weeds. For those weeds previously listed at 8 fluid ounces of this product alone per acre, use 12 fluid ounces in these tank mixtures.

NOTE: Refer to the specific product labels for crop rotation restrictions and cautionary statements of all products used in tank mixtures. Some crop injury may occur if Banvel is applied within 45 days of planting. The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed species.

Apply 12 to 16 fluid ounces of this product plus 0.25 lb. a.i. of Banvel or 0.5 pound a.i. of 2,4-D, plus 0.5 to 1 percent nonionic

surfactant by total spray volume per acre to control dense populations of the following annual broadleaf weeds when less than the height indicated:

Cocklebur (12")

Xanthium strumarium

Kochia* (6")

Kochia scoparia

Lambsquarters (12")

Chenopodium album

Lettuce, prickly (6")

Lactuca serriola

Marestail/Horseweed (6")

Conyza canadensis

Morningglory (6")

Ipomoea spp.

Pigweed, redroot (12")

Amaranthus retroflexus

Pigweed, smooth (12")

Amaranthus hybridus

Thistle, Russian (12")

Salsola kali

*Controlled with Banvel tank mixture only.

Apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre to control the following annual broadleaf weeds when less than 6 inches in height.

Ragweed, common

Ambrosia artemisiifolia

Ragweed, giant

Ambrosia trifida

Smartweed, Pennsylvania

Polygonum pennsylvanicum

Velvetleaf

Abutilon theophrasti

HIGH-VOLUME BROADCAST APPLICATIONS

When applied as directed under the conditions described, this product will control the weeds listed below when water carrier volumes are 10 to 40 gallons per acre for ground applications.

Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume. Use 1 quart per acre if weeds are less than 6 inches tall and 1.5 quarts per acre if weeds are over 6 inches tall. If weeds have been mowed, grazed, or cut, allow adequate time for new growth to reach recommended stages prior to treatment. These rates will also provide control of weeds listed in the "LOW-VOLUME BROADCAST APPLICATION" section.

WEED SPECIES

Balsamapple*

Momordica charantia

Bassia, fivehook

Bassia hyssopifolia

Brome

Bromus spp.

Fiddleneck

Amsinckia spp.

Flaxleaf Fleabane

Conyza bonariensis

Fleabane

Erigeron spp.

Kochia

Kochia scoparia

Lettuce, prickly

Lactuca serriola

Panicum

Panicum spp.

Ragweed, common

Ambrosia artemisiifolia

Ragweed, giant

Ambrosia trifida

Smartweed, Pennsylvania

Polygonum pensylvanicum

Sowthistle, annual

Sonchus oleraceus

Sunflower
Helianthus annuus

Thistle, Russian
Salsola kali

Velvetleaf
Abutilon theophrasti

*Apply with hand-held equipment only.

PERENNIAL WEEDS

Apply this product as follows to control or destroy most perennial weeds:

NOTE: If weeds have been mowed or tilled, do not treat until plants have resumed active growth and have reached the recommended stages.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Repeat treatments must be made prior to crop emergence.

The addition of 1 to 2 percent dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product on perennial weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.

When applied as recommended under the conditions described, this product WILL CONTROL the following PERENNIAL WEEDS:

Alfalfa
Medicago sativa

Alligatorweed*
Alternanthera philoxeroides

Artichoke, Jerusalem
Helianthus tuberosus

Bahiagrass
Paspalum notatum

Bentgrass
Agrostis spp.

Bermudagrass
Cynodon dactylon

Bermudagrass, water (knotgrass)
Paspalum distichum

Bindweed, field
Convolvulus arvensis

Bluegrass, Kentucky
Poa spp.

Blueweed, Texas
Helianthus ciliaris

Brackenfern
Pteridium aquilinum

Bromegrass, smooth
Bromus inermis

Bursage, woollyleaf
Franseria tomentosa

Canarygrass, reed
Phalaris arundinacea

Cattail
Typha spp.

Clover, red
Trifolium pratense

Clover, white
Trifolium repens

Cogongrass
Imperata cylindrica

Dallisgrass
Paspalum dilatatum

Dandelion
Taraxacum officinale

Dock, curly
Rumex crispus

Dogbane, hemp
Apocynum cannabinum

Fescues
Festuca spp.

Fescue, tall

Festuca arundinacea

Guineagrass
Panicum maximum

Horsenettle
Solanum carolinense

Horseradish
Armoracia rusticana

Johnsongrass
Sorghum halepense

Kikuyugrass
Pennisetum clandestinum

Knapweed
Centaurea repens

Lantana
Lantana camara

Milkweed
Asclepias spp.

Muhly, wirestem
Muhlenbergia frondosa

Mullein, common
Verbascum thapsus

Napiergrass
Pennisetum purpureum

Nightshade, silverleaf
Solanum elaeagnifolium

Nutsedge, purple, yellow
Cyperus rotundus
Cyperus esculentus

Orchardgrass
Dactylis glomerata

Pampasgrass
Cortaderia jubata

Paragrass
Brachiaria mutica

Phragmites*

Phragmites spp.

Quackgrass

Agropyron repens

Redvine*

Brunnichia ovata

Reed, giant

Arundo donax

Ryegrass, perennial

Lolium perenne

Smartweed, swamp

Polygonum coccineum

Spurge, leafy*

Euphorbia esula

Sweet potato, wild*

Ipomoea pandurata

Thistle, Canada

Cirsium arvense

Timothy

Phleum pratense

Torpedograss*

Panicum repens

Trumpetcreeper*

Campsis radicans

Vaseygrass

Paspalum urvillei

Wheatgrass, western

Agropyron smithii

*Partial Control

This product is not registered in California for use on water bermudagrass.

See "DIRECTIONS FOR USE" and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for labeled uses and specific application instructions.

Alfalfa--Apply 1 quart of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10

gallons of water per acre. Make application after the last hay cutting in the fall. Allow alfalfa to regrow to a height of 6 to 8 inches or more prior to treatment. Applications should be followed with deep tillage at least 7 days after treatment, but before soil freeze-up.

Alligatorweed--Apply 4 quarts of this product per acre or apply a 1.5 percent solution with hand-held equipment to provide partial control. Apply when most of the plants are in bloom. Repeat applications will be required to maintain such control.

Bentgrass--For suppression in grass seed production areas. For ground applications only, apply 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure entire crown area has resumed growth prior to a fall application. Bentgrass should be actively growing and have at least 3 inches of growth. Tillage prior to treatment should be avoided. Tillage 7 to 10 days after application is recommended for best results. Failure to use tillage after treatment may result in unacceptable control.

Bermudagrass--For control, apply 5 quarts of this product per acre. For partial control, apply 3 quarts per acre. Treat when bermudagrass is actively growing and seedheads are present. Retreatment may be necessary to maintain control. Allow 7 or more days after application before tillage.

Bermudagrass, water (knotgrass)--Apply 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Apply when water bermudagrass is actively growing and 12 to 18 inches in length. Allow 7 or more days before tilling, flushing or flooding the field.

Fall applications only - Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 5 to 10 gallons of water per acre. Fallow fields should be tilled prior to application. Apply prior to frost on water bermudagrass that is actively growing and 12 to 18 inches in length. Allow 7 or more days before tillage.

Bindweed, field--For control, apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts east of the Mississippi River. Apply when the weeds are actively growing and are at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Also for control, apply 2 quarts of this product plus 0.5 pound a.i. of Banvel in 10 to 20 gallons of water per acre. At these rates, apply using ground application only.

The following tank mixtures with 2,4-D may be applied using aerial application equipment (except in California) in fallow and reduced tillage systems only.

For suppression on irrigated agricultural land, apply 1 to 2 quarts of this product plus 1 pound a.i. of 2,4-D in 10 to 20 gallons of water per acre with ground equipment only. Applications should be made following harvest or in fall fallow ground when the bindweed is actively growing and the majority of runners are 12 inches or more in length. The use of at least one irrigation will promote active bindweed growth.

For suppression, apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Applications should be delayed until maximum emergence has occurred and when vines are between 6 to 18 inches in length.

In California only, apply 1 to 5 quarts of this product per acre. Actual rate needed for suppression or control will vary within this range depending on local conditions.

For suppression on irrigated land where annual tillage is performed, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing bindweed that has reached a length of 12 inches or greater. Allow maximum weed emergence and runner growth. Do not treat when weeds are under drought stress as good soil moisture is necessary for active growth. Allow 3 or more days after application before tillage.

Bluegrass, Kentucky / Bromegrass, smooth / Orchardgrass--Apply 2 quarts of this product in 10 to 40 gallons of water per acre when the grasses are actively growing and most plants have reached boot-to-early seedhead stage of development. For partial control in pasture or hay crop renovation, apply 1 to 1.5 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to actively growing plants when most have reached 4 to 12 inches in height. Allow 7 or more days after application before tillage.

Orchardgrass (sods going to no-till corn)--Apply 1 to 1.5 quarts of this product per acre plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to orchardgrass that is a minimum of 12 inches tall for spring applications and 6 inches tall for fall applications. Allow at least 3 days following application before planting. A sequential application of atrazine will be necessary for optimum results.

Blueweed, Texas--Apply 4 to 5 quarts of this product per acre west of the Mississippi River and 3 to 4 quarts per acre east of the Mississippi River. Apply when weed is actively growing and is at or beyond full bloom. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth. New leaf development indicates active growth. For best results, apply in late summer or fall. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage.

Brackenfern--Apply 3 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment. Apply to fully expanded fronds which are at least 18 inches long.

Bursage, woollyleaf--For control, apply 2 quarts of this product plus 1 pint of Banvel per acre. For partial control, apply 1 quart of this product plus 1 pint of Banvel per acre. Add 0.5 to 1 percent nonionic surfactant by total spray volume and apply in 3 to 20 gallons of water per acre. Apply when plants are producing new active growth which has been initiated by moisture for at least 2 weeks and when plants are at or beyond flowering.

Canarygrass, reed/Timothy / Wheatgrass, western--Apply 2 to 3 quarts of this product per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth. Allow 7 or more days after application before tillage.

Cogongrass--Apply 3 to 5 quarts of this product plus 0.5 to 1 percent nonionic surfactant in 10 to 40 gallons of water per acre. Apply when Cogongrass is at least 18 inches tall and actively growing in late summer or fall. Allow 7 or more days after application before tillage or mowing. Due to uneven stages of growth and the dense nature of vegetation preventing good spray coverage, repeat treatments may be necessary to maintain control.

Dandelion/Dock, curly--Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fluid ounces of this product plus 0.5 pound a.i. 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre.

Dogbane, hemp--Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage.

For suppression, apply 16 fluid ounces of this product plus 0.5 pound a.i. of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre for ground applications and 3 to 5 gallons of water per acre for aerial applications. Delay applications until maximum emergence of dogbane has occurred.

Fescue, tall--Apply 3 quarts of this product in 10 to 40 gallons of water per acre to actively growing plants when most have reached boot-to-early seedhead stage of development.

Fall applications only--Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Apply to fescue in the fall when actively growing and plants have 6 to 12 inches of new growth. Allow 7 or more days after application before tillage. A sequential application of 1 pint per acre of this product plus nonionic surfactant will improve long-term control and control seedlings germinating after fall treatments or the following spring.

Guineagrass--Apply 3 quarts of this product per acre or use a 1 percent solution with hand-held equipment. Apply to actively growing guineagrass when most has reached at least the 7-leaf stage of growth. Ensure thorough coverage when using hand-held equipment. Allow 7 or more days after application before tillage.

Johnsongrass/Ryegrass, perennial--Apply 1 to 3 quarts of this product per acre. In annual cropping systems apply 1 to 2 quarts of this product per acre. Apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre. In noncrop, or areas where annual tillage (no-till) is not performed, apply 2 to 3 quarts of this product in 10 to 40 gallons of water per acre. For best results, apply to actively growing plants when most have reached the boot-to-head stage of growth or in the fall prior to frost. Allow 7 or more days after application before tillage. Do not tank-mix with residual herbicides when using the 1 quart per acre rate.

For burndown of Johnsongrass, apply 1 pint per acre plus 0.5 to 1 percent nonionic surfactant in 3 to 10 gallons of water per acre before the plants reach a height of 12 inches. For this use, allow at least 3 days after treatment before tillage.

Spot treatment (partial control or suppression)--Apply a 1 percent solution of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume when Johnsongrass is 12 to 18 inches in height. Coverage should be uniform and complete.

Kikuyugrass--Apply 2 to 3 quarts of this product per acre. Spray

when most kikuyugrass is at least 8 inches in height (3 or 4-leaf stage of growth) and actively growing. Allow 3 or more days after application before tillage.

Knapweed/Horseradish--Apply 4 quarts of this product per acre. Apply when actively growing and when most weeds have reached the late bud to flower stage of growth. Following crop harvest or mowing, allow weeds to regrow to a mature stage prior to treatment. For best results, apply in late summer or fall. Allow 7 or more days after application before tillage.

Lantana--Apply this product as a 1 to 1.25 percent solution using hand-held equipment only. Apply to actively growing lantana at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth. Allow 7 or more days after application before tillage.

Milkweed, common--Apply 3 quarts of this product per acre. Apply when actively growing and most of the milkweed has reached the late bud to flower stage of growth. Following small grain harvest or mowing, allow milkweed to regrow to a mature stage prior to treatment. Allow 7 or more days after application before tillage.

Muhly, wirestem--Apply 1 to 2 quarts of this product per acre. Use 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Use 2 quarts of this product when applying 10 to 40 gallons of water per acre or in pasture, sod, or noncrop areas. Spray when the wirestem muhly is 8 inches or more in height and actively growing. Do not till between harvest and fall applications or in the fall or spring prior to spring applications. Allow 3 or more days after application before tillage. This product will not provide residual control of wirestem muhly from seeds which germinate after application of this product. Do not tank mix with residual herbicides when using the 1 quart per acre rate.

Nightshade, silverleaf--For control, apply 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Applications should be made when at least 60 percent of the plants have berries. Fall treatments must be applied before a killing frost. Allow 7 or more days after application before tillage. Do not treat when weed is under drought stress as good soil moisture is necessary for active growth.

Nutsedge: purple, yellow--Apply 3 quarts of this product per acre as a broadcast spray, or apply a 1 to 2 percent solution from hand-held equipment to control existing nutsedge plants and immature nutlets attached to treated plants. Treat when plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Repeat treatments will be required for long-

term control of ungerminated tubers.

Sequential applications of 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre will provide control. Make applications when a majority of the plants are in the 3 to 5-leaf stage (less than 6 inches tall). Repeat this application, as necessary, when newly emerging plants reach the 3 to 5-leaf stage. Subsequent applications will be necessary for long-term control.

For suppression to partial control of existing plants, apply 1 pint to 2 quarts of this product per acre, plus 0.5 to 1 percent nonionic surfactant in 3 to 40 gallons of water per acre. Treat when plants have 3 to 5 leaves and most are less than 6 inches tall. Repeat treatments will be required to control subsequent emerging plants or regrowth of existing plants. Wait 7 days after treatment before tillage or mowing.

For improved control of existing nutsedge plants, apply 1 to 3 quarts of this product plus 8 to 16 fluid ounces of Goal per acre plus 0.5 to 1 percent nonionic surfactant in 3 to 40 gallons of water per acre. Treat when plants have 3 to 5 leaves and most are less than 6 inches tall. Repeat treatments will be required to control subsequent emerging plants or regrowth of existing plants. Wait 7 days after treatment before tillage or mowing.

Pampasgrass--Apply this product as a 1.5 to 2 percent solution using hand-held equipment. Apply to plants that are actively growing at or beyond the boot stage of growth. Thorough coverage is necessary for best control.

Phragmites--For partial control of phragmites in Florida and the counties of other states bordering the Gulf of Mexico, apply 5 quarts per acre as a broadcast spray or apply a 2 percent solution from hand-held equipment. In other areas of the U.S., apply 3 quarts per acre as a broadcast spray or apply a 1 percent solution from hand-held equipment for partial control. For best results, treat during late summer or fall months or when plants are actively growing and in full bloom. Treatment before or after this stage may lead to reduced control. Due to the dense nature of the vegetation, which may prevent good spray coverage or uneven stages of growth, repeat treatments may be necessary to maintain control. Visual control symptoms will be slow to develop.

Quackgrass--In Annual Cropping Systems, or in Pastures and Soda Followed by Deep Tillage: Apply 1 to 2 quarts of this product per acre. For the 1 quart rate, apply 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. For the 2 quart rate, apply in 10 to 40 gallons of water per acre. Do not tank mix with residual herbicides when using the 1 quart rate. Spray when quackgrass is 6 to 8 inches in height and actively growing. Do not till between harvest and fall applications

or in fall or spring prior to spring application. Allow 3 or more days after application before tillage. In pastures or sods, for best results use a moldboard plow.

Quackgrass--Pasture or Sod or Other Noncrop Areas Where Deep Tillage is Not Planned Following Application: Apply 2 to 3 quarts in 10 to 40 gallons of water per acre. Spray when the quackgrass is greater than 8 inches tall and actively growing. Do not till between harvest and fall application or in fall or spring prior to spring application. Allow 3 or more days after application before tillage.

Redvine--For suppression, apply 24 fluid ounces of this product per acre at each of two applications 7 to 14 days apart or a single application of 2 quarts per acre. Apply recommended rates in 5 to 10 gallons of water per acre plus 0.5 to 1 percent nonionic surfactant by total volume. Apply to actively growing plants in late September or early October, which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

Reed, giant--For control of giant reed, apply a 2 percent solution of this product when plants are actively growing. Best results are obtained when applications are made in late summer to fall.

Smartweed, swamp--Apply 3 to 5 quarts of this product per acre when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Also for control, apply 16 fluid ounces of this product plus 0.5 pound active ingredient of 2,4-D plus 0.5 to 1 percent nonionic surfactant by total volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing and most have reached the early bud stage of growth. Allow 7 or more days after application before tillage.

Spurge, leafy--For suppression, apply 16 fluid ounces of this product plus 0.5 pound active ingredient 2,4-D plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall. Apply when plants are actively growing. If mowing has occurred prior to treatment, apply when most of the plants are 12 inches tall. Allow 7 or more days after application before tillage.

Sweet Potato, wild--Apply this product as a 2 percent solution using hand-held equipment. Apply to actively growing weeds that are at or beyond the bloom stage of growth. Repeat applications will be required. Allow the plant to reach the recommended stage of growth before retreatment. Allow 7 or more days before tillage.

Thistle, Canada--Apply 2 to 3 quarts of this product per acre. Apply

to actively growing thistles when most are at or beyond the bud stage of growth. After harvest, mowing or tillage in the late summer or fall, allow at least 4 weeks for initiation of active growth and rosette development prior to the application of this product. Fall treatments must be applied before a killing frost. Allow 3 or more days after application before tillage.

For suppression of Canada thistle, apply 1 quart per acre of this product, or 1 pint of this product plus 0.5 pound a.i. 2,4-D per acre, plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre in the late summer or fall after harvest, mowing or tillage. Allow rosette regrowth to a minimum of 6 inches in diameter before treating. Applications can be made as long as leaves are still green and plants are actively growing at the time of application. Allow 3 or more days after application before tillage.

Torpedograss—Apply 4 to 5 quarts of this product per acre to provide partial control of torpedograss. Apply to actively growing torpedograss when most plants are at or beyond the seedhead stage of growth. Repeat applications will be required to maintain control. Fall treatments must be applied before frost. Allow 7 or more days after application before tillage.

Trumpet creeper—For control, apply 2 quarts of this product per acre in 5 to 10 gallons of water per acre. Apply to actively growing plants in late September or October, which are at least 18 inches tall and have been growing 45 to 60 days since the last tillage operation. Make applications at least 1 week before a killing frost.

Other perennials listed on this label—Apply 3 to 5 quarts of this product per acre. Apply when actively growing and most have reached early head or early bud stage of growth. Allow 7 or more days after application before tillage.

WOODY BRUSH AND TREES

When applied as recommended under the conditions described, this product CONTROLS or PARTIALLY CONTROLS the following woody brush, plants and trees:

Alder

Alnus spp.

Ash*

Fraxinus spp.

Aspen, quaking

Populus tremuloides

Bearmat (Bearclover)

Chamaebatia foliolosa

Birch

Betula spp.

Blackberry

Rubus spp.

Broom:

French

Cytisus monspessulanus

Scotch

Cytisus scoparius

Buckwheat, California*

Eriogonum fasciculatum

Cascara*

Rhamnus purshiana

Catsclaw*

Acacia greggi

Ceanothus*

Ceanothus spp.

Chamise

Adenostoma fasciculatum

Cherry:

Bitter

Prunus emarginata

Black

Prunus serotina

Pin

Prunus pensylvanica

Coyote brush

Baccharis consanguinea

Creeper, Virginia*

Parthenocissus quinquefolia

Dewberry

Rubus trivialis

Elderberry

Sambucus spp.

Elm*

Ulmus spp.

Eucalyptus

Eucalyptus spp.

Hasardia*

Haplopappus squamosus

Hawthorn

Crataegus spp.

Hazel

Corylus spp.

Honeysuckle

Lonicera spp.

Kudzu

Pueraria lobata

Locust, black*

Robinia pseudoacacia

Madrone

Arbutus menziesii

Manzanita

Arctostaphylos spp.

Maple:

Red**

Acer rubrum

Sugar

Acer saccharum

Vine*

Acer circinatum

Monkey Flower*

Mimulus guttatus

Oak:

Black*

Quercus velutina

Northern Pin

Quercus palustris

Post

Quercus stellata

Red

Quercus rubra

Southern Red

Quercus falcata

White*

Quercus alba

Persimmon*

Diospyros spp.

Poison Ivy

Rhus radicans

Poison Oak

Rhus toxicodendron

Poplar*, yellow

Liriodendron tulipifera

Raspberry

Rubus spp.

Rose, multiflora

Rosa multiflora

Russian-olive***

Elaeagnus angustifolia

Sage, black

Salvia mellifera

Sagebrush, California

Artemisia californica

Salmonberry

Rubus spectabilis

Sassafras

Sassafras albidum

Sourwood

Oxydendrum arboreum

Sumac:

Poison*

Rhus vernix

Smooth*

Rhus glabra

Winged*

Rhus copallina

Sweetgum

Liquidambar styraciflua

Swordfern*

Polystichum munitum

Tallowtree, Chinese

Sapium sebiferum

Tan Oak

Lithocarpus densiflorus

Thimbleberry

Rubus parviflorus

Tobacco, tree*

Nicotiana glauca

Trumpet creeper

Campsis radicans

Willow

Salix spp.

* Partial control

** See below for control or partial control instructions.

*** This product is not registered in California for use on Russian-olive.

NOTE: If brush has been mowed or tilled or trees have been cut, do not treat until regrowth has reached the recommended stages of growth.

Apply this product when plants are actively growing and, unless otherwise directed, after full leaf expansion. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when application is made in the spring to early summer when brush species are at high moisture content and are flowering.

Ensure thorough coverage when using hand-held equipment. Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

See ''DIRECTIONS FOR USE'', and ''MIXING, ADDITIVES, and APPLICATION INSTRUCTIONS'' sections of this label for labeled uses and specific application instructions.

Apply this product as follows to control or partially control the following woody brush and trees.

Alder/Dewberry/Honeysuckle/Post Oak/Raspberry—For control, apply 3 to 4 quarts per acre of this product as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment.

Aspen, quaking/Cherry: bitter, black, pin/Hawthorn /Oak, southern red/Sweetgum/Trumpet creeper—For control, apply 2 to 3 quarts of this product per acre as a broadcast spray or as a 1 to 1.5 percent solution with hand-held equipment.

Birch/Elderberry/Hazel/Salmonberry/Thimbleberry—For control, apply 2 quarts per acre of this product as a broadcast spray or as a 1 percent solution with hand-held equipment.

Blackberry—For control, apply 3 to 4 quarts per acre of this product as a broadcast spray, or 1 to 1.5 percent solution with hand-held equipment. Make application after plants have reached full leaf maturity. Best results are obtained when applications are made in late summer or fall. After berries have set or dropped in late fall, blackberry can be controlled by applying a 3/4 percent solution of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume with hand-held equipment. For control of blackberries after leaf drop and until killing frost or as long as stems are green, apply 3 to 4 quarts of this product in 10 to 40 gallons of water per acre.

Broom: French, Scotch—For control, apply a 1.5 to 2 percent solution with hand-held equipment.

Buckwheat, California/Hazardia/Monkey Flower/ Tobacco, tree—For partial control of these species, apply a 1 to 2 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

Catsclaw—For partial control, apply as a 1 to 1.5 percent solution with hand-held equipment.

Coyote Brush—For control, apply a 1.5 to 2 percent solution with hand-held equipment when at least 50 percent of the new leaves are

fully developed.

Eucalyptus—For control of eucalyptus resprouts, apply a 2 percent solution of this product with hand-held equipment when resprouts are 6 to 12 feet tall. Ensure complete coverage. Apply when plants are growing actively. Avoid application to drought-stressed plants.

Kudzu—For control, apply 4 quarts of this product per acre as a broadcast spray or as a 2 percent solution with hand-held equipment. Repeat applications will be required to maintain control.

Madrone resprouts—For suppression or partial control, apply a 2 percent solution of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with spring/early summer treatments.

Maple, red—For control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed. For partial control, apply 2 to 4 quarts of this product per acre as a broadcast spray.

Maple, sugar/Oak, northern pin/Oak red—For control, apply as a 1 to 1.5 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.

Poison Ivy/Poison Oak—For control, apply 4 to 5 quarts of this product per acre as a broadcast spray or as a 2 percent solution with hand-held equipment. Repeat applications may be required to maintain control. Fall treatments must be applied before leaves lose green color.

Rose, multiflora—For control, apply 2 quarts of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment. Treatments should be made prior to leaf deterioration by leaf-feeding insects.

Sage, black/Sagebrush, California/Chamise/Tallowtree, Chinese—For control of these species, apply a 1 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

Tan oak resprouts—For suppression or partial control, apply a 2 percent solution of this product to resprouts less than 3 to 6 feet tall. Best results are obtained with fall applications.

Willow—For control, apply 3 quarts of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment.

Other Woody Brush and Trees listed on this label—For partial control, apply 2 to 4 quarts of this product per acre as a broadcast spray or as a 1 to 2 percent solution with hand-held equipment.

NONCROP USES

See 'GENERAL INFORMATION' and 'MIXING, ADDITIVES and APPLICATION INSTRUCTIONS' sections of this label for essential product performance information and the following 'NONCROP' sections for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE TURFGRASSES, TREES, SHRUBS OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seeds.

This product does not provide residual weed control. For subsequent weed control, follow a label-approved herbicide program.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

**INDUSTRIAL, RECREATIONAL
AND PUBLIC AREAS**

When applied as directed for 'NONCROP USES', under conditions described, this product controls annual and perennial weeds listed on this label growing in areas such as airports, ditch banks, dry ditches, dry canals, fencerows, golf courses, highways, industrial plant sites, lumber yards, parking areas, parks, petroleum tank farms and pumping installations, pipelines, power and telephone rights-of-way, railroads, roadsides, schools, storage areas, utility substations, other public areas and similar industrial or noncrop areas.

For specific rates of application and instructions for control of various annual and perennial weeds and woody brush and trees, see the 'WEEDS CONTROLLED' section of this label.

This product may be applied with recirculating sprayers, shielded applicators, or wiper applicators in any noncrop site specified on this label. See the Selective Equipment part of 'APPLICATION EQUIPMENT and TECHNIQUES' section of this label for information on proper use and calibration of this equipment.

■ **TANK MIXTURES FOR
INDUSTRIAL SITES AND
FORESTRY SITE PREPARATIONS** ■

■ **Roundup plus OUST[™]** ■

Use on industrial sites including airports, industrial plants, lumberyards, petroleum tank farms, pumping stations, pipelines, railroads, roadsides, storage areas or other similar sites where bare ground is desired.

This tank mixture may also be used as a site preparation treatment for sites to be planted to jack pine, loblolly pine, red pine, slash pine and Virginia pine.

When applied as directed for "NONCROP USES" under the conditions described, this product plus Oust provides control of annual weeds listed in the "WEEDS CONTROLLED" section of the label for this product and Oust, and control or partial control of the perennial weeds listed below.

Apply 1 to 2 quarts of this product with 2 to 4 ounces of Oust in 10 to 40 gallons of spray solution per acre as a broadcast spray to actively growing weeds.

This mixture may be applied by aerial equipment in site prep operations. When applied by air, use the recommended rates in 5 to 15 gallons of spray solution per acre.

This product plus Oust tank mixtures may not be applied by air in California.

For control of annual weeds, use the lower rates of these products.

For control of the listed perennial weeds, use the higher rates of both products. For partial control, use the lower rates.

Bahiagrass

Paspalum notatum

Bermudagrass*

Cynodon dactylon

Broomsedge

Andropogon virginicus

Dock, curly

Rumex crispus

Dogfennel

Eupatorium capilliflorum

Fescue, tall

Festuca arundinacea

Johnsongrass**

Sorghum halepense

Poorjoe**

Diodia teres

Quackgrass

Agropyron repens

Trumpet creeper*

Campsis radicans

Vaseygrass

Paspalum urvillei

Vervain, blue

Verbena hastata

*Suppression at the higher rates only.

**Control at the lower rates.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

**TANK MIXTURES
NONCROP SITES**

When applied as a tank mixture, this product provides control of the emerged annual weeds and partial control of the emerged perennial weeds listed in this label. When applied as a tank mixture, the following residual herbicides will provide preemergence control of the weeds listed in the individual product labels.

■ Roundup plus DIURON ■

■ Roundup plus KROVAR™ I ■

■ Roundup plus KROVAR II ■

■ Roundup plus RONSTAR™ 50WP ■

| | | |
|---|------------------------------------------------|---|
| ■ | Roundup plus SIMAZINE,
PRINCEP™ CALIBER™ 90 | ■ |
| ■ | Roundup plus SIMAZINE 4L | ■ |
| ■ | Roundup plus SIMAZINE 80W | ■ |
| ■ | Roundup plus SURFLAN™ 75W | ■ |
| ■ | Roundup plus SURFLAN AS | ■ |

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution. See the 'MIXING, ADDITIVES and APPLICATION INSTRUCTIONS' section of this label before preparing these tank mixtures.

Read and carefully observe the label claims, cautionary statements, recommended use rates and all other information on the labels of all products used in these tank mixtures. Use according to the most restrictive label directions for each product in the mixture.

CONTROL OF EMERGED WEEDS

Annual Weeds—Apply 1 quart per acre of this product in these tank mixtures when weeds are less than 6 inches tall and 1.5 quarts per acre when weeds are more than 6 inches tall.

Perennial Weeds—For partial control of perennial weeds using these tank mixtures, apply 2 to 5 quarts per acre of this product. Follow the recommendations in the 'WEEDS CONTROLLED' section of this label for stage of growth and rate of application for specific perennial weeds.

PREEMERGENCE WEED CONTROL

For preemergence weed control, refer to the individual product labels for specific noncrop sites, rates, carrier volumes and precautionary statements.

Mix only the quantity of spray solution which can be used during the same day. Do not allow these tank mixtures to stand overnight as this may result in reduced weed control.

APPLY THESE TANK MIXTURES THROUGH CONVENTIONAL BROADCAST EQUIPMENT ONLY.

FARMSTEAD WEED CONTROL

When applied as directed for ''NONCROP USES'', under conditions described, this product controls undesirable vegetation listed on this label around farmstead building foundations, along and in fences, shelterbelts and for general nonselective farmstead weed control.

For specific rates of application and instructions for control of various annual and perennial weeds, see the 'WEEDS CONTROLLED' section of this label.

FARM DITCHES

This product will suppress perennial grasses along farm ditches. Apply this product at a rate of 6 to 8 fluid ounces per acre. Use 8 fluid ounces per acre when treating tall (coarse) fescue, fine fescue, orchardgrass or quackgrass covers. For best suppression of these species, add ammonium sulfate at a rate of 1.7 pounds per 10 gallons of spray solution. Use 6 fluid ounces per acre without ammonium sulfate when treating Kentucky bluegrass.

Apply treatments in 10 to 20 gallons of spray solution per acre to actively growing perennial grass covers. For best spray distribution and coverage, use flat fan nozzles.

Add a nonionic surfactant at a rate of 0.5 percent of the spray solution.

Where broadleaf weed control or suppression is desired, tank mix this product with an appropriate, labeled broadleaf weed herbicide.

CONSERVATION RESERVE PROGRAM (CRP ACRES)

This product can be used to control undesirable vegetation when rotating out of CRP acres or to suppress competitive growth and seed production of undesirable vegetation in CRP acres.

For specific rates of application for various annual and perennial weeds, see the "WEEDS CONTROLLED" section of this label.

CRP applications may be made with wiper applicators or conventional spray equipment.

For selective applications with broadcast spray equipment, apply 12 to 16 ounces per acre of this product in early spring before desirable CRP grasses, such as crested and tall wheatgrass, break

dormancy and initiate green growth. Late fall applications can be made after desirable perennial grasses have reached dormancy. Some stunting of CRP perennial grasses will occur if applications are made when plants are not dormant.

HABITAT MANAGEMENT

This product is recommended for the restoration and/or maintenance of native habitats and in wildlife management areas. Apply as recommended in the "NONCROP USES" section of this label.

Habitat Restoration and Maintenance - When applied as directed, exotic and other undesirable vegetation may be controlled in habitat management areas. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broadspectrum vegetation control requirements in habitat management areas. Spot treatments can be made to selectively remove unwanted plants for habitat maintenance and enhancement. For spot treatments, care should be exercised to keep spray off of desirable plants.

Wildlife Food Plots - This product may be used as a site preparation treatment prior to planting wildlife food plots. Any wildlife food species may be planted after applying this product, or native species may be allowed to repopulate the area. If tillage is needed to prepare a seedbed, wait 7 days after applying this product before tilling.

ORNAMENTALS AND CHRISTMAS TREES

THIS PRODUCT IS NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN ORNAMENTALS AND CHRISTMAS TREES.

Note: Desirable plants may be protected from the spray solution by using shields or coverings made of cardboard or other impermeable material.

When applied as instructed for the conditions described for "NONCROP USES", this product controls undesirable vegetation listed on this label prior to planting, within and around greenhouses and shadehouses, and as a postdirected spray around established ornamentals and Christmas trees.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "Weeds Controlled" section of this label.

Where repeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year.

Site Preparation—Following preplant applications of this product, any ornamental or Christmas tree species may be planted. Precautions should be taken to protect nontarget plants during site preparation applications.

Greenhouse/Shadehouse Use—This product may be used to control weeds listed on this label which are growing in greenhouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

Postdirected Spray—Use as a postdirected spray around established woody ornamental species or Christmas trees such as those listed below. Care must be exercised to avoid contact of spray, drift or mist with foliage of or green bark of established ornamental species.

Arborvitae

Thuja spp.

Azalea

Rhododendron spp.

Boxwood

Buxus spp.

Crabapple

Malus spp.

Euonymus

Euonymus spp.

Fir

Abies spp.

Pseudotsuga spp.

Jojoba
Simmondsia chinensis

Hollies
Ilex spp.

Lilac
Syringa spp.

Magnolia
Magnolia spp.

Maple
Acer spp.

Oak
Quercus spp.

Privet
Ligustrum spp.

Pine
Pinus spp.

Spruce
Picea spp.

Yew
Taxus spp.

**SILVICULTURAL SITES and
RIGHTS-OF-WAY**

NOTE: NOT RECOMMENDED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN
SILVICULTURAL NURSERIES

When applied as directed for "'NONCROP USES'" under conditions described, this product controls undesirable vegetation listed on this label. This product also suppresses or controls undesirable vegetation listed on this label when applied at recommended rates for release of established coniferous species listed on this label.

For specific rates of application and instructions for control of various brush, annual and perennial weeds, see the "'WEEDS CONTROLLED'" section of this label. For specific rates of application for release of listed coniferous species, see the "'CONIFER RELEASE'" part of this section of the label.

Where repeat applications are necessary, do not exceed 10.6 quarts

of this product per acre per year.

Aerial Application—This product may be applied using aerial spray equipment for silvicultural site preparation, conifer release and rights-of-way treatments. See the "APPLICATION EQUIPMENT and TECHNIQUES" part of the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label for information on how to apply this product by air.

DO NOT APPLY THIS PRODUCT BY AIR TO RIGHTS-OF-WAY SITES IN THE STATE OF CALIFORNIA.

To reduce the aerial application drift hazard to aquatic sites*, to nontarget sites or any site containing desirable vegetation, always maintain appropriate buffer zones. A buffer zone of the following minimum distances should be maintained:

- Helicopters using a Microfoil™ boom, a Thru-Valve™ boom (TVB-45), or equivalent drift control systems, should maintain at least a 50-foot buffer zone.
- When using other aerial equipment:
 1. Maintain at least a 75-foot buffer zone for applications using 2 quarts or less per acre of this product.
 2. Maintain at least a 125-foot buffer zone for applications using more than 2 quarts per acre of this product.
 3. Maintain at least a 400-foot buffer zone for applications on rights-of-way when applied from 75 feet or more above ground level.

These distances should be increased if conditions favoring drift exist.

- * Aquatic sites include all lakes, ponds and streams used for significant domestic purposes or angling.

■ SITE PREPARATION ■

Following preplant applications of this product, any silvicultural species may be planted.

■ POSTDIRECTED SPRAY ■

In established silvicultural sites, use as a spray on the foliage of undesirable vegetation. Care must be exercised to avoid contact of spray, drift or mist with foliage or green bark of desirable species.

CONIFER RELEASE

For release, apply only where conifers have been established for more than one year. Vegetation should not be disturbed prior to treatment or until visual symptoms appear after treatment. Symptoms of treatment are slow to appear, especially in woody species treated in late fall. Injury may occur to conifers treated for release, especially where spray patterns overlap or the higher rates are applied or when applications are made during periods of active conifer growth. **Do not use additional surfactant with conifer release applications.**

Applications must be made after formation of final conifer resting buds in the fall or prior to initial bud swelling in spring. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Use the following rates for conifer release to control or partially control the weeds listed in the "WEEDS CONTROLLED" section of this label.

For release of the following conifer species:

Douglas fir

Pseudotsuga menziesii

Fir

Abies spp.

Hemlock

Tsuga spp.

Pines*

Pinus spp.

Spruce

Picea spp.

* Includes all species except eastern white pine, loblolly pine or slash pine.

Apply 1.5 to 2 quarts of this product per acre except in Washington and Oregon, west of the crest of the Cascade Mountains. For spring treatments west of the crest of the Cascade Mountains, apply 1 quart of this product per acre before conifer bud swell for control of annual weeds. For fall treatments in Washington and Oregon, west of the crest of the Cascade Mountains, apply 1 to 1.5 quarts of this product per acre before any major leaf drop of deciduous species.

For release of western hemlock, apply 1 quart of this product per acre.

For release of the following conifer species:

Loblolly pine
Pinus taeda

Eastern white pine
Pinus strobus

Slash pine
Pinus elliottii

Late Season Application—Apply 1.5 to 2 quarts of this product in a minimum of 5 gallons of spray solution per acre during early autumn. Applications made prior to September 1 or when conditions are conducive to rapid growth of conifers will create the potential for increased injury in the form of tip and/or needle burn. Injury may decrease with later applications. Some autumn colors are acceptable at time of application. Apply prior to frost or leaf drop of undesirable plants. Applications made according to label directions will release loblolly pine, eastern white pine and slash pine by reducing competition from the following species:

Ash
Fraxinus spp.

Cherry:
Black
Prunus serotina

Pin
Prunus pensylvanica

Elm
Ulmus spp.

Hawthorn
Crataegus spp.

Locust, black
Robina pseudoacacia

Maple, red
Acer rubra

Oak:
Black
Quercus velutina

Post
Quercus stellata

Southern Red
Quercus falcata

White
Quercus alba

Persimmon
Diospyros spp.

Poplar, yellow
Liriodendron tulipifera

Sassafras
Sassafras albidum

Sourwood
Oxydendrum arboreum

Sumac:
Poison
Rhus vernix

Smooth
Rhus glabra

Winged
Rhus copallina

Sweetgum
Liquidambar styraciflua

Apply only to those sites where woody brush and trees listed in this label constitute the majority of the undesirable species.

■ **Roundup plus Oust Tank Mixtures** ■
for Conifer Release from Herbaceous Weeds

To release loblolly pines from herbaceous weeds, tank mixtures of this product with Oust will provide control of annual weeds listed in the "WEEDS CONTROLLED" section of this and the Oust label, and partial control of the perennial weeds listed below.

Apply 16 to 24 fluid ounces of this product with 2 to 4 ounces of Oust in 10 to 30 gallons of spray solution per acre. Make application to actively growing weeds as a broadcast spray over the top of the young loblolly pines.

This product plus Oust tank mixtures may not be applied by air in California.

This tank mixture may be applied using aerial equipment. When applying by air, use the recommended rate in 5 to 15 gallons of spray solution per acre.

For control of annual weeds below 12 inches in height (or runner

length on annual vines), use the lower rates of both products. Use the higher rates of both products when annual weeds are in more advanced stages of growth and approaching flower or seed formation.

Use the higher rates of both products for partial control of the following perennial weeds. Use the lower rates for suppression of growth.

Bahiagrass

Paspalum notatum

Broomsedge

Andropogon virginicus

Dock, curly

Rumex crispus

Dogfennel

Eupatorium capilliflorum

Fescue, tall

Festuca arundinacea

Johnsongrass*

Sorghum halepense

Poorjoe*

Diodia teres

Trumpet creeper**

Campsis radicans

Vaseygrass

Paspalum urvillei

Vervain, blue

Verbena hastata

*Control at the higher rates.

**Suppression at the higher rates only.

Pine damage may occur or can be accentuated if treatment takes place when young trees are under stress from drought, flood water, insects or disease.

Read and observe the cautionary statements and all other information appearing on the labels of all herbicides used.

NOTE TO USER

This product must not be used in areas where adverse impact on federally designated endangered/threatened plant or aquatic species is likely.

Prior to making applications, the user of this product must determine that no such species are located in or immediately adjacent to the area to be treated.

■ CUT STUMP TREATMENTS ■

Woody vegetation may be controlled by treating freshly cut stumps of trees and resprouts with this product. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut vegetation close to the soil surface. Apply a 50 to 100 percent solution of this product to the freshly cut surface immediately after cutting. Delays in application may result in reduced performance. For best results, applications should be made during periods of active growth and full leaf expansion.

When used according to directions for cut stump application, this product will CONTROL, PARTIALLY CONTROL or SUPPRESS many types of woody brush and tree species, some of which are listed below:

Alder

Alnus spp.

Eucalyptus

Eucalyptus spp.

Madrone

Arbutus menziesii

Oak

Quercus spp.

Reed, giant

Arundo donax

Saltcedar

Tamarisk spp.

Sweetgum

Liquidambar styraciflua

Tan Oak

Lithocarpus densiflorus

Willow

Salix spp.

INJECTION AND FRILL APPLICATIONS

Woody vegetation may be controlled by injection or frill application of this product. Apply this product using suitable equipment which must penetrate into the living tissue. Apply the equivalent of 1 ml of this product per each 2 to 3 inches of trunk diameter (DBH). This is best achieved by applying a 50 to 100 percent concentration of this material either to a continuous frill around the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying diluted material to a continuous frill or more closely spaced cuttings. Avoid application techniques that allow runoff to occur from frill or cut areas in species that exude sap freely after frills or cutting. In species such as this, make frill or cut at an oblique angle so as to produce a cupping effect and use undiluted material. For best results, application should be made during periods of active growth and after full leaf expansion.

This treatment WILL CONTROL the following woody species:

Oak

Quercus spp.

Poplar

Populus spp.

Sweetgum

Liquidambar styraciflua

Sycamore

Platanus occidentalis

This treatment WILL SUPPRESS the following woody species:

Black gum

Nyssa sylvatica

Dogwood

Cornus spp.

Hickory

Carya spp.

Maple, red

Acer rubrum

TURFGRASSES AND GRASSES FOR SEED PRODUCTION

■ PREPLANT AND RENOVATION ■

When applied as directed for 'NONCROP USES', under conditions described, this product controls most existing vegetation prior to the planting or renovation of either turfgrasses or grass seed production areas.

For specific rates of application and instructions for control of various annual and perennial weeds, and woody brush and trees, see the 'WEEDS CONTROLLED' section of this label.

For maximum control of existing vegetation, delay planting to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses, such as bermudagrass, summer or fall applications provide best control.

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

TURFGRASSES

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth listed in the 'WEEDS CONTROLLED' section of this label.

Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray.

Desirable turfgrasses may be planted following the above procedures.

GRASSES FOR SEED PRODUCTION

Apply this product to actively growing weeds at the stages of growth recommended in the 'WEEDS CONTROLLED' section of this label prior to planting or renovation of turf or forage grass areas grown for seed production.

DO NOT feed or graze treated areas within 8 weeks after application.

■ ANNUAL WEED CONTROL IN DORMANT BERMUDAGRASS AND BAHIA GRASS TURF ■

When applied as directed for 'NONCROP USES' under the conditions described, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant bermudagrass and bahiagrass turf. Refer to the rate table for Roundup alone under the 'RELEASE OF BERMUDAGRASS and BAHIAGRASS' section of this label for recommended rates and volumes on the species to be suppressed or controlled. Treat only when turf is dormant and prior to spring greenup. Spot treatments or broadcast applications of this product in excess of 16 fluid ounces per acre may result in injury or delayed greenup in highly maintained turfgrass areas; i.e., golf courses, lawns, etc. DO NOT APPLY TANK MIXTURES of this product plus Oust in highly maintained turfgrass areas.

RELEASE OF BERMUDAGRASS OR BAHIAGRASS

NOTE: Use only in areas where bermudagrass or bahiagrass are desirable ground covers and where some temporary injury or discoloration can be tolerated. Use tank mixtures of this product plus Oust only on railroads, highways, utility plant sites, or other right-of-way areas.

When applied as directed for 'NONCROP USES' under the conditions described, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant bermudagrass or bahiagrass. This product may be tank-mixed with Oust as recommended for residual control. Make applications to dormant bermudagrass or bahiagrass. Tank mixtures of this product plus Oust may delay greenup. To avoid delays in greenup and minimize injury, do not add more than 1 ounce per acre of Oust on bermudagrass or more than 0.5 ounce per acre on bahiagrass, or treat when these grasses are in a semi-dormant condition.

For best results on winter annuals, treat when plants are in an early growth stage (below 6 inches in height) after most have germinated. For best results on tall fescue, treat when fescue is in or beyond the 4 to 6-leaf stage.

WEEDS CONTROLLED

Rate recommendations for control or suppression of winter annuals and tall fescue are listed below:

Apply the recommended rates of this product alone or as a tank mixture in 10 to 25 gallons of water, plus 0.5 to 1 percent nonionic surfactant by total spray volume per acre.

For the best recommendation for the mixture of weeds within your geographic area, contact your Monsanto sales representative.

**WEEDS CONTROLLED OR SUPPRESSED
WITH Roundup ALONE***

NOTE: C = Control
S = Suppression

| WEED SPECIES | Roundup FLUID OZ/ACRE | | | | | |
|----------------------------------------------------------------|-----------------------|----|----|----|----|----|
| | 8 | 12 | 16 | 24 | 32 | 64 |
| Barley, little
<i>Hordeum pusillum</i> | S | C | C | C | C | C |
| Bedstraw, catchweed
<i>Galium aparine</i> | S | C | C | C | C | C |
| Bluegrass, annual
<i>Poa annua</i> | S | C | C | C | C | C |
| Chervil
<i>Chaerophyllum tainturieri</i> | S | C | C | C | C | C |
| Chickweed, common
<i>Stellaria media</i> | S | C | C | C | C | C |
| Clover, crimson
<i>Trifolium incarnatum</i> | • | S | S | C | C | C |
| Clover, large hop
<i>Trifolium campestre</i> | • | S | S | C | C | C |
| Fescue, tall
<i>Festuca arundinaceae</i> | • | • | • | • | S | S |
| Geranium, Carolina
<i>Geranium carolinianum</i> | • | • | S | S | C | C |
| Henbit
<i>Lamium amplexicaule</i> | • | S | C | C | C | C |
| Ryegrass
Italian
<i>Lolium multiflorum</i> | • | • | S | C | C | C |
| Speedwell, corn
<i>Veronica arvensis</i> | S | C | C | C | C | C |
| Vetch, common | • | • | S | C | C | C |

Vicia sativa

- * These rates apply only to sites where an established competitive turf is present.

**WEEDS CONTROLLED OR SUPPRESSED
WITH Roundup PLUS OUST***

NOTE: C = Control
S = Suppression

| | | Roundup + OUST | | | | | | |
|-----------------------------------------------------------|--------------------|----------------|-----|-----|-----|-----|----|----|
| WEED
SPECIES | Roundup (FL. OZ/A) | 8 | 12 | 12 | 16 | 16 | 12 | 16 |
| | OUST (OZ/A) | + | + | + | + | + | + | + |
| | | 1/4 | 1/4 | 1/2 | 1/4 | 1/2 | 1 | 1 |
| Barley, little
<i>Hordeum pusillum</i> | | C | C | C | C | C | C | C |
| Bedstraw, catchweed
<i>Galium aparine</i> | | C | C | C | C | C | C | C |
| Bluegrass, annual
<i>Poa annua</i> | | S | C | C | C | C | C | C |
| Chervil
<i>Chaerophyllum tainturieri</i> | | C | C | C | C | C | C | C |
| Chickweed, common
<i>Stellaria media</i> | | S | C | C | C | C | C | C |
| Clover, crimson
<i>Trifolium incarnatum</i> | | S | S | S | S | C | C | C |
| Clover, large hop
<i>Trifolium campestre</i> | | . | . | S | S | S | C | C |
| Fescue, tall
<i>Festuca arundinaceae</i> | | . | . | . | . | . | S | S |
| Geranium, Carolina
<i>Geranium carolinianum</i> | | . | S | S | C | C | C | C |
| Henbit
<i>Lamium amplexicaule</i> | | . | S | C | C | C | C | C |
| Ryegrass, Italian | | . | S | S | C | C | C | C |

Lolium multiflorum

Speedwell, corn
Veronica arvensis

S C C C C C C

Vetch, common
Vicia sativa

C C C C C C C

- * These rates or mixtures of rates apply only to sites where an established competitive turf is present.

RELEASE OF ACTIVELY GROWING BERMUDAGRASS

When applied as directed, this product will aid in the release of bermudagrass by providing control of annual species listed in the "WEEDS CONTROLLED" section of this and the Oust label, and suppression or partial control of certain perennial weeds.

For control or suppression of those annual species listed on this label, use 1 to 3 pints of this product as a broadcast spray in 10 to 25 gallons of spray solution per acre. Use the lower rate when treating annual weeds below 6 inches in height (or length of runner in annual vines). Use the higher rate as weeds increase in size or as they approach flower or seedhead formation.

Use the higher rate of this product for partial control of the following perennial species. Use the lower rates for suppression of growth. For best results, see the "Weeds Controlled" section of this label for proper stage of growth.

Bahiagrass

Paspalum notatum

Bluestem, silver

Andropogon saccharoides

Fescue, tall

Festuca arundinacea

Johnsongrass*

Sorghum halepense

Trumpet creeper**

Campsis radicans

Vaseygrass

Paspalum urvillei

- *Control at the higher rates.

****Suppression at higher rates only.**

This product may be tank-mixed with Oust. If tank-mixed, use no more than 1 to 2 pints per acre of this product with 1 to 2 ounces of Oust per acre.

Use the lower rates of both mixtures to control annual weeds below 6 inches in height (or runner length in annual vines) that are listed in the 'WEEDS CONTROLLED' section of this booklet and the Oust label. Use the higher rates as annual weeds increase in size and approach the flower or seedhead stages.

Use the higher rates of this product to provide partial control of the following perennial weeds. Use the lower rates for suppression of growth.

Bahiagrass

Paspalum notatum

Bluestem, silver

Andropogon saccharoides

Broomsedge

Andropogon virginicus

Dock, curly

Rumex crispus

Dogfennel

Eupatorium capilliflorum

Fescue, tall

Festuca arundinacea

Johnsongrass*

Sorghum halepense

Poorjoe**

Diodia teres

Trumpet creeper*

Campsis radicans

Vaseygrass

Paspalum urvillei

Vervain, blue

Verbena hastata

***Suppression at higher rates only.**

****Control at the higher rates.**

Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment but regrowth will occur under moist conditions. Repeat applications in the same season are not recommended, since severe injury may result.

Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

**COOL SEASON TURF
GROWTH REGULATION**

When applied as directed, this product will suppress growth and seedhead development of listed turf species in industrial sites.

This product is recommended for management of coarse turf on roadside rights-of-way or other industrial areas. Do not use on high-quality turf or other areas where some turf color changes cannot be tolerated. Slight turf discoloration may occur but turf will regreen and regrow under moist conditions as effects of this product wear off.

Apply 4 to 6 fluid ounces of this product per acre alone or in a recommended tank mixture. Spray volumes of 10 to 40 gallons per acre are recommended.

When using this product, mix 2 quarts of a nonionic surfactant per 100 gallons of spray solution.

This product can be used for growth and seedhead suppression of:

**Tall Fescue
Smooth Brome**

For best results, apply this product in a recommended tank mixture to actively growing turfgrasses after greenup in the spring of the year. For suppression of seedheads, applications must be made before boot-to-seedhead stage of development. Applications made from seedhead emergence until maturity may result in turf discoloration or injury.

After mowing or removal of seedheads, this product in a recommended tank mixture may also be used to suppress the growth of certain turfgrasses. Allow turf to recover from stress caused by heat, drought, or mowing before making applications. Applications made to turf under stress may increase the potential for discoloration or injury.

ANNUAL GRASSES

For growth suppression of some annual grasses such as annual ryegrass, wild barley and wild oats, apply 3 to 4 fluid ounces of this product in 10 to 40 gallons of spray solution per acre. Applications should be made when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments made after seedhead emergence may cause injury to the desired grasses.

TANK MIXTURES

For the following tank mixtures, consult each product label for weeds controlled and the correct stage of application. Do not treat turf under stress.

Tank mixtures plus 2,4-D Amine

For additional weed control benefits, up to 1 pound a.i. per acre of 2,4-D amine may be added to the following tank mixtures. Consult the label for 2,4-D amine for weeds controlled.

TALL FESCUE

Roundup plus Telar™

For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.5 ounce of Telar per acre.

This tank mixture can also be applied after mowing or removal of tall fescue seedheads for turf growth suppression. Make only one of the above applications per growing season.

Roundup plus Oust

For suppression of tall fescue growth and seedheads, and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

Roundup plus Escort™

This tank mixture can be applied after mowing or removal of tall fescue seedheads for turf growth suppression and control or partial control of some annual weeds. Use up to 1/3 ounce of Escort per acre.

NOTE: This product is not registered for use with Escort in California.

SMOOTH BROME

Roundup plus Oust

For suppression of smooth brome growth and seedheads and control or partial control of some annual weeds, apply this tank mixture after greenup and prior to boot-to-seedhead stage of development. Use up to 0.25 ounce of Oust per acre.

BAHIAGRASS SEEDHEAD AND VEGETATIVE SUPPRESSION

When applied as directed in the indicated noncrop areas (roadsides, airports, golf course roughs, and plant sites), this product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with single applications and approximately 120 days with sequential applications.

Apply this product 1 to 2 weeks after full greenup of bahiagrass or after the bahiagrass has been mowed to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 fluid ounces per acre of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume may be made at approximately 45 day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product per acre plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces per acre plus nonionic surfactant may be made approximately 45 days after the last application.

A tank mixture of this product plus Oust **may be applied only on roadsides** for seedhead inhibition and vegetative suppression. Apply 6 fluid ounces per acre of this product plus 0.25 ounce per acre of Oust, plus 0.5 to 1 percent nonionic surfactant by total spray volume 1 to 2 weeks following an initial spring mowing. When using this product plus Oust for suppression of bahiagrass, make only 1 application per year.

CROPPING SYSTEMS

When applied as directed for 'CROPPING SYSTEMS', under the conditions described, this product controls annual and perennial weeds listed on this label, prior to the emergence of direct seeded crops or prior to transplanting of crops listed on this label.

See 'GENERAL INFORMATION' and 'MIXING, ADDITIVES and APPLICATION INSTRUCTIONS' sections of this label for essential product performance information.

See the following 'CROPPING SYSTEMS' sections for specific recommended uses.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS OR FRUIT OF DESIRABLE CROPS, PLANTS, TREES OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Except as otherwise specified on this label, repeat treatments must be made before the crop emerges in accordance with the instructions of this label.

Except as otherwise specified in a crop section of this label, the combined total of all treatments must not exceed 8 quarts per acre of this product per year.

Do not plant subsequent crops other than those on the label for 30 days following application.

Do not harvest or feed treated vegetation for 8 weeks following application. Following spot treatment or selective equipment use, allow 14 days before grazing domestic livestock or harvesting forage grasses and legumes.

ROW CROPS

CORN (ALL) *
COTTON*
PEANUTS
SORGHUM (MILO) *
SOYBEANS*
SUGAR CANE*

CEREAL GRAINS

BARLEY*
BUCKWHEAT*

MILLET (PEARL, PROSO) *
OATS*
RICE**
RYE*
TRITICALE*
WHEAT (ALL) *
WILD RICE*

CITRUS

CALAMONDIN
CHIRONJA
CITRON
GRAPEFRUIT
KUMQUAT
LEMON
LIME
MANDARIN ORANGE
ORANGE (ALL)
PUMMELO
TANGELO
TANGERINE
TANGORS

TREE NUTS

ALMOND
BEECHNUT
BRAZIL NUT
BUTTERNUT
CASHEW
CHESTNUT
CHINQUAPIN
FILBERT (HAZELNUT)
HICKORY NUT
MACADAMIA
PECAN
PISTACHIO
WALNUT (BLACK, ENGLISH)

VINE CROPS

GRAPES
KIWI FRUIT

TREE FRUITS

APPLE
APRICOTS
CHERRY (SWEET, SOUR)
LOQUAT
MAYHAW
NECTARINE
OLIVE
PEACH

PEAR
PLUM/PRUNE (ALL)
QUINCE

VEGETABLES

ARTICHOKE,
JERUSALEM
ASPARAGUS*
BEANS (ALL)
BEET GREENS
BEETS (RED, SUGAR)
BROCCOLI (ALL)
BRUSSELS SPROUTS
CABBAGE (ALL)
CABBAGE, CHINESE
CANTALOUPE***
CARROT
CAULIFLOWER
CASABA MELON***
CELERY
CHARD, SWISS
CHICORY
COLLARDS
CRENSHAW MELON***
CUCUMBER***
EGGPLANT***
ENDIVE
GARLIC***
GOURDS***
GROUND CHERRY***
HONEYDEW MELON***
HONEY BALL MELON***
HORSERADISH
KALE
KOHLRABI
LEEK
LENTILS
LETTUCE
MANGO MELON***
MELONS (ALL)***
MUSKMELON***
MUSTARD GREENS
OKRA
ONION
RAPE GREENS
PARSLEY
PARSNIPS
PEAS (ALL)
PEPPER (ALL)***
PERSIAN MELON***
POTATO (IRISH, SWEET)
PUMPKIN***
RADISH
RHUBARB

RUTABAGA
SPINACH (ALL)
SQUASH (SUMMER, WINTER) ***
TOMATILLO***
TOMATO***†
TURNIP
WATERCRESS***
WATERMELON***
YAMS

SMALL FRUITS AND BERRIES

BLACKBERRY
BLUEBERRY
BOYSENBERRY
CRANBERRY
CURRANT
DEWBERRY
ELDERBERRY
GOOSEBERRY
HUCKLEBERRY
LOGANBERRY
OLALLIEBERRY
RASPBERRY (BLACK, RED)

FORAGE CROPS AND LEGUMES

ALFALFA*
FORAGE GRASSES*
FORAGE LEGUMES*

TROPICAL CROPS

ACEROLA
ATEMOYA
AVOCADO
BANANA (PLANTAINS)
BREADFRUIT
CANISTEL
CARAMBOLA
CHERIMOYA
COCOA BEANS
COFFEE
DATES
FIGS
GENIP
GUAVA
JABOTICABA
JACKFRUIT
LONGAN
LYCHEE
MANGO
PAPAYA
PASSION FRUIT
PERSIMMONS

PINEAPPLE****
POMEGRANATE
SAPODILLA
SAPOTE (BLACK, MAMEY, WHITE)
SOURSOP
SUGAR APPLE
TAMARIND
TEA

- * Spot treatments may be applied in these crops.
- ** Do not treat rice fields or levees when the fields contain flood water.
- *** Apply only prior to planting. Allow at least 3 days between application and planting.
- **** Do not feed or graze treated pineapple forage following application.
- † Use is restricted to direct seeded crops only.

When applying this product prior to transplanting crops into plastic mulch, care must be taken to remove residues of this product from the plastic prior to transplanting. Residues can be removed by 0.5 inch natural rainfall or by applying water via a sprinkler irrigation system.

Spot Treatment (Only those crops with '*' can be spot treated.)—Applications in growing crops must be made prior to heading of small grains and milo, initial pod set in soybeans, silking of corn, or boll opening on cotton.

For forage grasses and forage legumes see 'SPOT TREATMENT' in the 'PASTURES' section of 'CROPPING SYSTEMS' in this label.

For dilution and rates of application using boom or hand-held equipment, see 'MIXING, ADDITIVES and APPLICATION INSTRUCTIONS' and 'WEEDS CONTROLLED' sections of this label.

NOTE: FOR FORAGE GRASSES AND FORAGE LEGUMES, NO MORE THAN ONE-TENTH OF ANY ACRE SHOULD BE TREATED AT ONE TIME. FOR ALL OTHER CROPS, DO NOT TREAT MORE THAN 10 PERCENT OF THE TOTAL FIELD AREA TO BE HARVESTED.

THE CROP RECEIVING SPRAY IN TREATED AREA WILL BE KILLED. TAKE CARE TO AVOID DRIFT OR SPRAY OUTSIDE TARGET AREA FOR THE SAME REASON.

Selective Equipment—This product may be applied through recirculating sprayers, shielded applicators or wiper applicators in cotton and soybeans. Shielded and wiper applicators may also be used in tree crops and grapes. Wiper applicators may be used in

rutabagas, forage grasses and forage legumes, including pasture sites and grain sorghum (milo).

See the ''SELECTIVE EQUIPMENT'' part of the ''APPLICATION EQUIPMENT and TECHNIQUES'' section of this label for information on proper use and calibration of this equipment.

Allow at least the following time intervals between application and harvest:

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Cotton, Soybeans | 7 days |
| Apples, Atemoya, Avocado, Breadfruit, Canistel,
Carambola, Cherry, Citrus, Grapes, Dates,
Jaboticaba, Jackfruit, Longan, Lychee, Passion
Fruit, Pear, Persimmons, Rutabagas, Sapodilla,
Sapote, Soursop, Sugar Apple, Tamarind | 14 days |
| Stone Fruit | 17 days |
| Nut Crops | 21 days |
| Sorghum (milo)* | 40 days |

* Do not use roller applicators. Do not feed or graze treated milo fodder. Do not ensile treated vegetation.

ASPARAGUS

When applied as directed for ''CROPPING SYSTEMS'' under the conditions described, this product controls weeds listed on this label in asparagus.

For specific rates of applications and instructions for control of various annual and perennial weeds, see the ''WEEDS CONTROLLED'' section of this label.

Prior to Crop Emergence—Apply this product prior to crop emergence for the control of emerged labeled annual and perennial weeds. DO NOT APPLY WITHIN A WEEK BEFORE THE FIRST SPEARS EMERGE.

Spot Treatment—Apply this product immediately after cutting, but prior to the emergence of new spears. Do not treat more than 10 percent of the total field area to be harvested. Do not harvest within 5 days of treatment.

Postharvest—Apply this product after the last harvest and all spears have been removed. If spears are allowed to regrow, delay application until ferns have developed. Delayed treatments should be applied as directed or shielded spray in order to avoid contact of the spray with ferns, stems or spears. Direct contact of the spray with the asparagus may result in serious crop injury.

NOTE: Select and use recommended types of spray equipment for postemergence postharvest applications. A directed spray is any application where the spray pattern is aligned in such a way as to avoid direct contact of the spray with the crop. A shielded

spray is any application where a physical barrier is positioned and maintained between the spray and the crop to prevent contact of spray with the crop.

BERRIES AND SMALL FRUITS

For cranberries, apply after fruit set and no later than 30 days before harvest.

For other berries, apply as a preplant broadcast application, or as a directed spray or wiper application post-planting.

Wiper applicators may be used in cranberries in accordance with instructions in this section.

See "GENERAL INFORMATION" and "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" sections of this label for essential product performance information.

See the "SELECTIVE EQUIPMENT" part of the "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for information on recommended use and calibration of this equipment.

Allow a minimum of 14 days between last application and harvest of small fruits and berries.

For Wick or other Wiper Applicators—Mix 1 gallon of this product in 4 gallons of water to prepare a 20 percent solution. Apply the solution to emerged weeds. Apply after cranberry fruit set and no later than 30 days before harvest.

In severe infestations, reduce equipment ground speed to ensure that adequate amounts of this product are wiped on the weeds. A second treatment in the opposite direction may be beneficial.

Do not permit herbicide solution to contact desirable vegetation, including green shoots, canes or foliage.

FALLOW AND REDUCED TILLAGE SYSTEMS

FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO SUPPLEMENTAL LABEL.

Use this product in fallow and reduced tillage systems for control of annual weeds prior to emergence of crops listed in this label. Refer to the "WEEDS CONTROLLED" section of this label for specific rates and instructions. This product may be applied using ground or aerial spray equipment. See the "APPLICATION EQUIPMENT and TECHNIQUES" section of this label for instructions.

TANK MIXTURES

■ Roundup plus BANVEL ■
plus NONIONIC SURFACTANT

■ Roundup plus 2,4-D ■
plus NONIONIC SURFACTANT

■ Roundup plus GOAL™ ■
plus NONIONIC SURFACTANT

DO NOT APPLY BANVEL OR 2,4-D TANK MIXTURES BY AIR IN CALIFORNIA.

Applications of 2,4-D or Banvel must be made at least 7 days prior to planting corn.

The addition of Banvel in a mixture with this product may provide short-term residual control of selected weed species. Some crop injury may occur if Banvel is applied within 45 days of planting. Refer to the Banvel and 2,4-D labels for cropping restrictions and other use instructions.

Roundup plus Goal Tank Mixtures

This product alone or in tank mixtures with Goal plus 0.5 to 1 percent nonionic surfactant by total spray volume will provide control of those weeds listed below.

Make applications when weeds are actively growing and at the recommended stages of growth. Avoid spraying when weeds are subject to moisture stress, when dust is on the foliage or when straw canopy covers the weeds.

Roundup 12 fluid oz/acre

| | |
|---------------|------|
| Wheat | 18"* |
| Barley | 12" |
| Bluegrass, | |
| annual | 6" |
| Barnyardgrass | 6" |
| Rye | 6" |

Roundup 16 fluid oz/acre

Annual grasses at
left plus:

| | |
|-----------|----|
| Ryegrass, | |
| annual | 6" |
| Chickweed | 6" |
| Groundsel | 6" |
| Marestail | 6" |

| | |
|------------------|-----|
| Rocket, London | 6" |
| Shepherdspurse | 6" |
| Crabgrass | 12" |
| Johnsongrass, | |
| seedling | 12" |
| Lambsquarters | 12" |
| Oats, wild | 12" |
| Pigweed, redroot | 12" |
| Mustards | 12" |

NOTE: Use 32 fluid ounces of this product per acre where heavy weed densities exist.

Roundup 12 fluid oz/acre
+
GOAL 2 to 4 fluid oz/acre**

Annual grasses above
plus:

| | |
|----------------|----|
| Cheeseweed, | |
| common | 3" |
| Chickweed | 3" |
| Groundsel | 3" |
| Rocket, London | 6" |
| Shepherdspurse | 6" |

Roundup 16 fluid oz/acre
+
GOAL 2 to 4 fluid oz/acre**

Annual weeds above
plus:

| | |
|----------------|-----|
| Cheeseweed, | |
| common | 6" |
| Groundsel | 6" |
| Chickweed | 12" |
| Rocket, London | 12" |
| Shepherdspurse | 12" |

NOTE: Use 32 fluid ounces of this product per acre in mixtures with 2 to 4 fluid ounces of Goal per acre where heavy weed densities exist.

* Maximum height or length in inches.

** Use the higher rate of Goal when weeds approach maximum recommended height or stands are dense.

These recommended tank mixtures may be applied using ground or aerial spray equipment. Refer to the "WEEDS CONTROLLED" section of this label for specific rates and instructions.

ECOFARMING SYSTEMS

The recommendations made in this section are not registered for use in California.

The Ecofarming System consists of the following rotation: winter wheat, corn/sorghum, ecofallow.

Use the following tank mixtures for control of emerged annual weeds before planting corn or sorghum in the Ecofarming System.

Roundup at 16 to 20 fluid ounces per acre
plus
2,4-D at 0.375 to 0.5 pound a.i. per acre
plus
ATRAZINE at 0.75 to 1 pound a.i. per acre
plus
LASSO® at 2.5 to 3 quarts per acre

The above tank mixture should be applied in 28-0-0 or 32-0-0 liquid fertilizer carrier at 20 to 30 gallons per acre. The liquid fertilizer may be diluted with water to achieve the desired carrier volume.

WEEDS CONTROLLED - The following weeds, up to a maximum height of 4 inches, will be controlled:

Brome, downy
Bromus tectorum

Cheat
Bromus secalinus

Foxtail, green
Setaria viridis

Foxtail, yellow
Setaria lutescens

Kochia*
Kochia scoparia

Lettuce, prickly
Lactuca serriola

Pigweed, redroot
Amaranthus retroflexus

Thistle, Russian
Salsola kali

Wheat, volunteer
Triticum aestivum

*For improved control of kochia, add 4 fluid ounces per acre (0.125 pound a.i. per acre) of Banvel to the above tank mixture.

Risk of crop injury from 2,4-D or Banvel can be reduced by applying this treatment 7 to 14 days before planting.

Refer to the label booklet for Lasso herbicide for preemergence weed control achieved by this tank mixture.

Refer to the specific product labels for crop rotation restrictions and cautionary statements for all products used in these tank mixtures.

AID TO TILLAGE

This product, when used in conjunction with preplant tillage practices, will provide control of downy brome, cheat, volunteer wheat, tansy mustard and foxtail. Apply 8 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre. Make applications when weeds are actively growing and before they are 6 inches in height. Application must be followed by conventional tillage practices no later than 15 days after treatment and before regrowth occurs. Allow at least 1 day after application before tillage. Tank mixtures with residual herbicides may result in reduced performance.

PASTURES

Apply this product prior to planting forage grasses and legumes.

Pasture or Hay Crop Renovation—When applied as a broadcast spray, this product controls the annual and perennial weeds listed in this label prior to planting forage grasses or legumes. Remove domestic livestock before application and wait 8 weeks after application before grazing or harvesting.

Spot Treatment—When applied as a spot treatment as recommended, this product controls annual and perennial weeds listed in this label which are growing in pastures, forage grasses and forage legumes composed of bahiagrass, bermudagrass, bluegrass, brome, fescue, orchardgrass, ryegrass, timothy, wheatgrass, alfalfa or clover.

Wiper Application—When applied as directed, this product controls or suppresses the weeds listed under "'WIPER APPLICATORS" in the "'SELECTIVE EQUIPMENT" section of this label.

For spot treatment and wiper application, apply in areas where the movement of domestic livestock can be controlled. No more than one-tenth of any acre should be treated at one time. Further applications may be made in the same area at 30-day intervals. Remove domestic livestock before application and wait 14 days after application before grazing livestock or harvesting.

SUGARCANE

When applied as directed for "'CROPPING SYSTEMS"', under the conditions described, this product controls those emerged annual and perennial weeds listed on this label growing in or around sugarcane or in fields to be planted to sugarcane. This product will also control undesirable sugarcane.

NOTE: Where repeat treatments are necessary, do not exceed a total of 10.6 quarts of this product per acre per year. Do not apply to vegetation in or around ditches, canals or ponds containing water to be used for irrigation.

Broadcast Treatment—Apply this product in 10 to 40 gallons of water per acre on emerged weeds growing in fields to be planted to sugarcane.

For specific rates of application and instructions for control of various annual and perennial weeds, see the "'WEEDS CONTROLLED'" section of this label.

For removal of last stubble or ratoon cane, apply 4 to 5 quarts of this product in 10 to 40 gallons of water per acre to new growth having at least 7 or more new leaves. Allow 7 or more days after application before tillage.

Spot Treatment in or Around Sugarcane Fields—For dilution and rates of application using hand-held equipment, see "'MIXING, ADDITIVES and APPLICATION INSTRUCTIONS'" and "'WEEDS CONTROLLED'" sections of this label.

For control of volunteer or diseased sugarcane, make a 1 percent solution of this product in water and spray to wet the foliage of vegetation to be controlled.

NOTE: When spraying volunteer or diseased sugarcane, the plants should have at least 7 new leaves.

Avoid spray contact with healthy cane plants since severe damage or destruction may result.

Do not feed or graze treated sugarcane forage following application.

CONSERVATION TILLAGE, MINIMUM TILLAGE AND NO-TILL SYSTEMS
CORN AND SOYBEANS
Tank Mixtures

The recommendations made in this section are not registered for use in California.

When applied as recommended under the conditions described, the tank mixtures listed in this section control many emerged weeds, and give preemergence control of many annual weeds where corn or soybeans will be planted directly into a cover crop, established sod or in previous crop residues.

Refer to specific product labels for crop rotation restrictions and cautionary statements of all products used in these tank mixtures.

For mixing instructions, see the "MIXING, ADDITIVES and APPLICATION INSTRUCTIONS" section of this label.

Apply these tank mixtures in 10 to 20 gallons of water or 10 to 60 gallons of nitrogen solution per acre before, during or after planting. Do not apply these mixtures after crop emergence.

When tank mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution. The addition of 1 to 2 percent dry ammonium sulfate by weight may increase the performance of this product.

NOTE: When using these tank mixtures, do not exceed 4 quarts of this product per acre.

CORN

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

| | |
|-----------------|-------------|
| LASSO®/ALACHLOR | ATRAZINE |
| LARIAT® | CYANAZINE |
| BULLET® | SIMAZINE |
| DUAL™ | PROWL™ |
| BICEP™ | MICRO-TECH® |
| PARTNER® | |

For improved burndown, this product may be tank-mixed with 2,4-D or dicamba. Applications of 2,4-D or dicamba must be made at least 7 days prior to planting corn. See the "WEEDS CONTROLLED" section for specific rate information.

SOYBEANS

For residual control, this product may be tank-mixed with the following herbicides or combination of herbicides:

| | |
|-----------------|---------------|
| CANOPY™ | LOROX™ PLUS |
| COMMAND™ | PREVIEW™ |
| DUAL™ | PROWL™ |
| GEMINI™ | TURBO™ |
| LASSO®/ALACHLOR | SCEPTER™ |
| LEXONE™ | SENCOR™ |
| LINURON | SQUADRON™ |
| PURSUIT™ | PURSUIT PLUS™ |
| PARTNER® | MICRO-TECH® |

For improved burndown, this product may be tank-mixed with the following herbicides:

2,4-DB
2,4-D

* See the label for 2,4-D for intervals between application and planting.

CORN AND SOYBEANS

Annual Weeds--For difficult-to-control weeds such as fall panicum, barnyardgrass, crabgrass, shattercane and broadleaf signalgrass up to 2 inches tall, and Pennsylvania smartweed up to 6 inches tall, apply this product at 2 pints per acre in these tank mixtures. For other labeled annual weeds, apply 1 to 1.5 pints of this product per acre when weeds are less than 6 inches tall, and 2 to 3 pints when weeds are over 6 inches tall. For a complete list of annual weeds controlled, see the "WEEDS CONTROLLED" section of this label.

Perennial Weeds--At normal application times in minimum tillage systems, perennial weeds may not be at the proper stage of growth for control. See the "WEEDS CONTROLLED" section of this label for the proper stage of growth for perennial weeds.

Use of 2 to 4 quarts of this product per acre in the tank mixtures mentioned above, under these conditions provides top kill and reduces competition from many emerged perennial grass and broadleaf weeds. For emerged perennial weeds controlled, see the "WEEDS CONTROLLED" section of this label.

To obtain the desired stage of growth, it may be necessary to apply this product alone in the late summer or fall and then follow with a label-approved, seedling weed control program at planting.

USE OF THESE TANK MIXTURES FOR BERMUDAGRASS OR JOHNSONGRASS CONTROL IN MINIMUM TILLAGE SYSTEMS IS NOT RECOMMENDED. For bermudagrass control, follow the instructions under "CONTROL OF PERENNIAL WEEDS" section of this label and then use a label-approved, seedling weed-control program in a minimum tillage or conventional tillage system. For Johnsongrass control, follow instructions under "CONTROL OF PERENNIAL WEEDS" section of this label, and then use a label-approved, seedling weed-control program with conventional tillage.

PREHARVEST APPLICATIONS

When applied as directed under the conditions described, this product controls annual and perennial weeds listed on this label prior to the harvest of cotton and soybeans.

SOYBEANS

Apply after pods have set and lost all green color. Allow a minimum of 7 days between application and harvest of soybeans. Care should be taken to avoid excessive seed shatter loss due to ground application equipment.

Do not graze or harvest treated crop for livestock feed within 25 days of last preharvest application.

DO NOT APPLY MORE THAN 6 QUARTS PER ACRE OF THIS PRODUCT FOR PREHARVEST APPLICATIONS.

DO NOT APPLY MORE THAN 1 QUART PER ACRE OF THIS PRODUCT BY AIR.

For specific rates and application instructions for control of various annual and perennial weeds, see the "WEEDS CONTROLLED" section of the Roundup label booklet.

This product may be applied by both ground and aerial application equipment. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of the Roundup label booklet for instructions for ground and aerial applications.

NOTE: It is not recommended that soybeans grown for seed be treated because a reduction in germination or vigor may occur.

The use of this product for preharvest soybeans is not registered in California.

COTTON

Broadcast Applications--This product may be applied using either aerial or ground spray equipment. For ground applications with broadcast equipment, apply this product in 10 to 20 gallons of water per acre. For aerial applications, apply this product in 3 to 10 gallons of water per acre.

FOR AERIAL APPLICATIONS, REFER TO THE "APPLICATION EQUIPMENT AND TECHNIQUES" AND "AERIAL EQUIPMENT" SECTIONS OF THIS LABEL.

FOR AERIAL APPLICATIONS IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

DO NOT EXCEED A MAXIMUM RATE OF 1 QUART PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR.

Weed Control--For specific rates of application and instructions for control of various annual and perennial weeds for this product used alone or in the following tank mixtures, see the "WEEDS CONTROLLED" section of this label.

To control Johnsongrass using multiple-directed or broadcast over-the-top spray equipment, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. Ensure complete coverage.

For partial control of field bindweed, apply 1 quart of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre. Apply when bindweed is actively growing and 12 inches or greater in length. Reduced performance may result if bindweed is under drought stress.

TANK MIXTURES

Roundup plus DEF™ 6
Roundup plus Folex™
Roundup plus Prep™
Roundup plus Prep plus DEF 6 or Folex

When applied as recommended under the conditions described, these tank mixtures control annual and perennial weeds listed on this label prior to the harvest of cotton. For application guidelines, precautions and use-rates, refer to the DEF, Folex and Prep labels.

This product when tank mixed with DEF 6 or Folex defoliants may provide enhancement of cotton leaf drop and regrowth inhibition.

Timing of Application--Apply this product or these tank mixtures for preharvest weed control after 60 percent of the cotton bolls have opened.

NOTE: DO NOT APPLY TO CROPS GROWN FOR SEED. Allow a minimum of 7 days between application and harvest. Do not feed or graze treated cotton forage or hay following preharvest applications.

TREE AND VINE CROPS

This product is recommended for weed control in established groves, vineyards, and orchards, or for site preparation prior to transplanting crops listed in this section. Applications may be made with boom equipment, CDA, shielded sprayers, hand-held and high-volume wands, lances, orchard guns, or with wiper applicator equipment, except as directed in this section. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of this label for specific information on use of equipment.

When applying this product, refer to the "WEEDS CONTROLLED" section of this label and to specific recommendations in this section for rates to be used.

NOTE

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual weed control. For subsequent weed control, use repeated applications of this product. Do not apply more than 10.6 quarts of this product per acre per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

AVOID PAINTING OUT STUMPS WITH THIS PRODUCT AS INJURY RESULTING FROM ROOT GRAFTING MAY OCCUR IN ADJACENT TREES.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

For specific rates of applications and instructions, see the "WEEDS CONTROLLED" section of this label, and to specific recommendations which follow.

MIDDLES MANAGEMENT

FOR ANNUAL WEEDS IN MIDDLES BETWEEN ROWS OF TREE AND VINE CROPS

For citrus crops treat uniformly between trees.

■
■

Roundup
Roundup plus GOAL™

■
■

This product alone or in mixtures with Goal will control or suppress the annual weeds listed below.

Apply the recommended rates of this product, either alone or in mixtures with Goal, plus 0.5 to 1 percent nonionic surfactant by spray volume in 3 to 10 gallons of water per acre. Apply when weeds are actively growing and less than 6 inches in height or diameter. If weeds are under drought stress, irrigate prior to application. Reduced control may occur if weeds have been mowed prior to application. Up to 48 fluid ounces per acre of this product may be used to control weeds, which have been mowed, are stressed, or are growing in dense populations.

| WEED SPECIES | MAXIMUM
HEIGHT/DIAMETER
(INCHES) | RATE PER ACRE | |
|----------------------------------------------------------|----------------------------------------|---------------------------|------------------------|
| | | Roundup
(FLUID OUNCES) | GOAL
(FLUID OUNCES) |
| Barley
<i>Hordeum vulgare</i> | 6 | 8 | -- |
| Bluegrass, annual
<i>Poa annua</i> | | | |
| Barnyardgrass
<i>Echinochloa crus-galli</i> | 6 | 12 | -- |
| Chickweed, common
<i>Stellaria media</i> | | | |
| Red Maids
<i>Calandrinia ciliata</i> | | | |
| Crabgrass
<i>Digitaria spp.</i> | 6 | 16 | -- |
| Fleabane, flaxleaf
<i>Conyza bonariensis</i> | | | OR |
| Groundsel, common
<i>Senecio vulgaris</i> | | 16 to 32 | + 4 to 16** |
| Junglerice
<i>Echinochloa colonum</i> | | | |
| Lambsquarters, common
<i>Chenopodium album</i> | | | |
| Pigweed, redroot
<i>Amaranthus retroflexus</i> | | | |
| Rocket, London
<i>Sisymbrium irio</i> | | | |
| Ryegrass, common
<i>Lolium multiflorum</i> | | | |
| Shepherdspurse
<i>Capsella bursa-pastoris</i> | | | |
| Sowthistle, annual
<i>Sonchus oleraceus</i> | | | |
| Cheeseweed, common
<i>Malva spp.</i> | 3 | 12 to 32 | + 4 to 16 |
| Cheeseweed, common
<i>Malva spp.</i> | 6 | 16 to 32 | + 4 to 16 |
| Filaree*
<i>Erodium spp.</i> | | | |
| Horseweed/Marestail
<i>Conyza canadensis</i> | | | |
| Nettle, stinging
<i>Urtica dioica</i> | | | |
| Purselane, common*
<i>Purtulaca oleracea</i> | | | |

* Suppression only.

**The mixture of this product plus Goal is recommended when weeds are stressed or growing in dense populations.

STRIPS

FOR ANNUAL AND PERENNIAL WEEDS IN STRIPS OF TREE AND VINE CROPS

TANK MIXTURES WITH RESIDUAL HERBICIDES

When applied as a tank mixture, this product provides control of the emerged annual weeds and control or suppression of emerged perennial weeds listed in this label. The following residual herbicides will provide preemergence control of those weeds listed in the individual product labels.

- | | | |
|---|-----------------------------------------------------------------------------------------------------------|---|
| ■ | Roundup plus GOAL™ 1.6E | ■ |
| ■ | Roundup plus KARMEX™ DF | ■ |
| ■ | Roundup plus KROVAR™ I | ■ |
| ■ | Roundup plus KROVAR™ II | ■ |
| ■ | Roundup plus SIMAZINE,
PRINCEP CALIBER™ 90 | ■ |
| ■ | Roundup plus SIMAZINE 4L | ■ |
| ■ | Roundup plus SIMAZINE 80W | ■ |
| ■ | Roundup plus SOLICAM™ 80DF | ■ |
| ■ | Roundup plus SURFLAN™ AS | ■ |
| ■ | Roundup plus SURFLAN 75W | ■ |
| ■ | Roundup plus SIMAZINE
(80W, or 4L, or PRINCEP CALIBER 90)
plus SURFLAN (AS or 75W) | ■ |
| ■ | Roundup plus GOAL (1.6E)
plus SURFLAN (AS or 75W) | ■ |
| ■ | Roundup plus GOAL (1.6E)
plus SIMAZINE
(80W, or 4L, or PRINCEP CALIBER 90) | ■ |
| ■ | Roundup plus GOAL (1.6E)
plus SURFLAN (AS or 75W)
plus SIMAZINE (80W, 4L,
or PRINCEP CALIBER 90) | ■ |

Do not apply these tank mixtures in Puerto Rico.

When tank-mixing with residual herbicides, add an agriculturally approved nonionic surfactant at 0.5 to 1 percent by volume of spray solution.

Refer to the individual product labels for specific crops, rates, geographical restrictions and precautionary statements.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the labels of all products.

RECOMMENDED RATES

Annual Weeds - Apply 1 to 5 quarts per acre of this product in these tank mixtures. Use rates at the higher end of the recommended range when weeds are stressed, growing in dense populations or are greater than 12 inches tall.

Perennial Weeds - Apply 1 pint to 5 quarts per acre of this product in these tank mixtures to control or suppress perennial weeds. Follow the recommendations in the "WEEDS CONTROLLED" section of this label for stage of growth and application rates for specific perennial weeds.

■ Roundup plus GOAL plus SIMAZINE/SURFLAN ■

This product plus low rates of Goal in 3-way or 4-way mixtures with simazine and/or Surflan will provide postemergence control of the weeds listed below.

Refer to the individual simazine and Surflan labels for preemergence rates, weeds controlled, precautionary statements and other important information.

Apply these tank mixtures in 3 to 40 gallons of water. Add 0.5 to 1 percent nonionic surfactant by total spray volume to the spray solution.

Apply 1 to 5 quarts per acre of this product plus 4 to 48 fluid ounces per acre of Goal plus labeled rates of simazine and/or Surflan to control the following weeds:

Barley, wild

Hordeum leporinum

Bluegrass, annual

Poa annua

Cheeseweed, common

Malva spp.

Chickweed, common

Stellaria media

Filaree*

Erodium spp.

Fleabane, flaxleaf

Conyza bonariensis

Groundsel, common
Senecio vulgaris
Horseweed/Marestail
Conyza canadensis
Nettle, stinging
Urtica dioica
Pineappleweed
Matricaria matricariodes
Rocket, London
Sisymbrium irio
Shepherdspurse
Capsella bursa-pastoris
Sowthistle, annual
Sonchus oleraceus

*Use a minimum of 1.5 quarts of this product in these mixtures.

NOTE: This recommendation does not preclude the use of Goal in these mixtures at higher, labeled rates for preemergence weed control.

■ PERENNIAL GRASS SUPPRESSION ■ ORCHARD FLOORS

When applied as directed, this product will suppress vegetative growth as indicated below.

Bahiagrass

This product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with a single application and approximately 120 days with sequential applications. Apply this product 1 to 2 weeks after full green-up or after mowing to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 6 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 25 gallons of water per acre.

Sequential applications of this product plus nonionic surfactant may be made at approximately 45-day intervals to extend the period of seedhead and vegetative growth suppression. For continued seedhead suppression, sequential applications must be made prior to seedhead emergence. Apply no more than 2 sequential applications per year. As a first sequential application, apply 4 fluid ounces of this product plus nonionic surfactant. A second sequential application of 2 to 4 fluid ounces may be made approximately 45 days after the last application.

Bermudagrass

For burndown, apply 1 to 2 quarts of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20

gallons of water per acre. Use 1 quart of this product in 3 to 20 gallons of water per acre east of the Rocky Mountains. Use 1 to 2 quarts of this product in 3 to 10 gallons of water per acre west of the Rocky Mountains. Use this treatment only if reduction of the bermudagrass stand can be tolerated. When burndown is required prior to harvest, allow at least 21 days to ensure sufficient time for burndown to occur.

Suppression only (east of the Rocky Mountains)—Apply 6 to 16 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 20 gallons of water per acre no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Rates of 6 to 10 fluid ounces of this product plus nonionic surfactant should be used in shaded conditions or where a lesser degree of suppression is desired. Sequential applications may be made when regrowth occurs and bermudagrass injury and stand reduction can be tolerated.

Suppression only (west of the Rocky Mountains)—Apply 16 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 10 gallons of water per acre to bermudagrass up to 6 inches in height and no sooner than 1 to 2 weeks after full green-up. Mowing prior to application may occur provided a minimum height of 3 inches is maintained. Sequential applications may be made when regrowth occurs and bermudagrass injury and stand reduction can be tolerated.

Cool Season Grass Covers

For suppression of tall fescue, fine fescue, orchardgrass and quackgrass, apply 8 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 10 to 20 gallons of water per acre. For best suppression, add ammonium sulfate to the spray solution at a rate of 2 percent by weight or 17 pounds per 100 gallons of spray solution.

For suppression of Kentucky bluegrass covers, apply 6 fluid ounces of this product plus 0.5 to 1 percent nonionic surfactant. Do not add ammonium sulfate.

For best results, mow cool-season grass covers in the spring to even their height and apply the recommended rate of this product 3 to 4 days after mowing. Avoid treating cool season grass covers under poor growing conditions, such as drought stress (drip irrigation), disease or insect damage.

LOW VOLUME APPLICATION (FLORIDA AND TEXAS)

For burndown or control of the weeds listed, apply the recommended rates of this product plus 0.5 to 1 percent nonionic surfactant by total spray volume in 3 to 30 gallons of water per acre. Where weed foliage is dense, use 10 to 30 gallons of water per acre.

Annual Weeds

Goatweed--Apply 2 to 3 quarts per acre of this product plus 17 pounds of ammonium sulfate per 100 gallons of water plus 0.5 to 1 percent nonionic surfactant by total spray volume. Apply in 20 to 30 gallons of water per acre when plants are actively growing. Use 2 quarts per acre when plants are less than 8 inches tall and 3 quarts per acre when plants are greater than 8 inches. If goatweed is greater than 8 inches tall, the addition of Krovar II or Karmex may improve control. Use labeled rates for these residual products.

Read and carefully observe the label claims, cautionary statements, rates and all other information on the Krovar II and Karmex labels.

Perennial Weeds

Apply when weeds are actively growing and at the growth stages listed in the "PERENNIAL WEEDS CONTROLLED" section of this label. If perennial weeds are mowed, allow weeds to regrow to the recommended stage of growth.

S = Suppression

B = Burndown

PC = Partial control

C = Control

| WEED
SPECIES | Roundup RATE PER ACRE | | | |
|-------------------------|-----------------------|-------|-------|-------|
| | 1 qt | 2 qts | 3 qts | 5 qts |
| Bermudagrass | B | • | PC | C |
| Guineagrass | | | | |
| Texas and Florida Ridge | B | C | C | C |
| Florida Flatwoods | • | B | C | C |
| Paragrass | B | C | C | C |
| Torpedograss | S | • | PC | C |

TREE CROPS

Citrus*: calamondin, chironja, citron, grapefruit, kumquat, lemon, lime, mandarin orange, orange, pummelo, tangelo, tangerine, tangors.

Nuts**: almond, beechnut, Brazil nut, butternut, cashew, chestnuts, chinquapin, filbert, hazel nut, hickory nut, macadamia, pecan, pistachio, walnut.

Pome Fruit*: apple, loquat, mayhaw, pear, quince.

Stone Fruit***: apricots, cherries, nectarines, olives, peaches, plums/prunes.

For cherries, any application equipment listed in this section may be used in all states.

For citron and olives, apply as a directed spray only.

Any application equipment listed in this section may be used in apricots, nectarines, peaches and plums/prunes growing in Arizona, California, Colorado, Idaho, Kansas, Kentucky, New Jersey, North Dakota, Oklahoma, Oregon, Texas, Utah and Washington, except for peaches grown in the states specified in the following paragraph. In all other states use wiper equipment only.

For PEACHES grown in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee only, apply with a shielded boom sprayer or shielded wiper applicator, which prevents any contact of this product with the foliage or bark of trees. Apply no later than 90 days after first bloom. Applications made after this time may result in severe damage. Remove suckers and low-hanging limbs at least 10 days prior to application. Avoid applications near trees with recent pruning wounds or other mechanical injury. Apply only near trees which have been planted in the orchard for 2 or more years. EXTREME CARE MUST BE TAKEN TO ENSURE NO PART OF THE PEACH TREE IS CONTACTED.

Tropical Fruit: acerola *, atemoya*, avocado*, banana* (plantains)****, breadfruit*, canistel*, carambola*, cherimoya*, cocoa beans*, coffee****, dates*, figs*, genip*, guava*****, jaboticaba*, jackfruit*, longan*, lychee*, mango*, mayhaw*, papaya*****, passion fruit*, persimmons*, pomegranate*, sapodilla*, sapote*, soursop*, sugar apple*, tamarind*, tea*. In coffee and banana, delay applications 3 months after transplanting to allow the new coffee or banana plant to become established.

NOTE:

- * Allow a minimum of 14 days between last application and harvest.
- ** Allow a minimum of 21 days between last application and harvest of these crops.
- *** Allow a minimum of 17 days between last application and harvest.
- **** Allow a minimum of 28 days between last application and harvest.
- ***** Allow a minimum of 1 day between last application and harvest.

VINE CROPS

Kiwi Fruit

Grapes: Any variety of table, wine or raisin grape may be treated with any equipment listed in this section.

Applications should not be made when green shoots, canes, or foliage are in the spray zone.

Allow a minimum of 14 days between last application and harvest.

In the northeast and Great Lakes regions, applications must be made prior to the end of bloom stage of grapes to avoid injury.

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™Command is a trademark of FMC Corporation.

™DEF is a trademark of Mobay Chemical Company.

™Microfoil is a trademark of Union Carbide Agricultural Products, Inc.

™Thru-Valve is a trademark of Waldrum Specialties, Inc.

This product is protected by

U.S. Patent No. 4,405,531.
Other patents pending.
No license granted under any
non-U.S. patent(s).

EPA Reg. No. 524-445

A-000.01

In case of an emergency involving this product,
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